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No. 15



A FOUL-BROOD LAW is strongly opposed by bee-keepers in Australia. T'other way here.

THE Chicago *Record-Herald* has this:

The bee stings once, and then  
May never sting again;  
The slanderer, day after day,  
In wanton malice stings away.

AUSTRALIA now has a third bee-journal. Like its predecessors, the new comer rejoices in a long name, *Australian Bee-keepers' Review*.

THE WORST DROUTH I ever knew in July. Grass entirely dead, to all appearance. Bees in danger of starving. [See answer to Straw elsewhere.—Ed.]

FOR TARTAR on the teeth, dentists use, says *Le Miroir des Modes du Jour*, the following: One part muriatic acid, one part water, and two parts honey.

FOR CRACKED LIPS.—Apply, on going to bed, a lotion consisting of two parts honey, two parts lemon juice, and one part cologne water.—*Le Progres Apicole*.

DOOLITTLE says in *Progressive* that stimulative feeding in time of dearth will keep up laying if weather is fairly comfortable, but it will do little or no good after three or more days of continued bad weather.

SILVER LINDEN was accused of destroying bees, many dead bees being found under it. Numerous defenders have appeared in the foreign journals, and it now seems doubtful that it was ever guilty in any case.

MRS. BARBER'S explanation seems reasonable for her bees, p. 598; but it still leaves the puzzling question, why do my bees act so differently? for when honey comes in a flood the baits are the first sections sealed in the super.

E. RUFFY reports in *Revue Internationale* that he put in his hives beside the feeders balls of unwashed cappings, and the bees used the wax of the cappings in building out comb with great rapidity. The balls may be the

size of an apple to the size of one's head, and it is essential that the cappings be unwashed.

B. F. AVERILL beats me in using foundation-splints without waxing. The bees tore down such splints for me. I like better the length of his splints, but putting them in out of hot wax I must use them shorter. I think I must try again and see if I can succeed with dry splints.

JULY 15 some of my colonies have stopped brood-rearing on account of the drouth. Sealed brood and eggs in the hive, but no unsealed brood, showing that the queen still lays, but the workers will not rear brood. I think that occurs more frequently than is generally supposed.

"AFTER A BEE has filled a cell with nectar she turns round and puts a drop of formic acid in it to preserve it."—Dear *British B. J.*, how could you allow such a statement in your columns without saying it was rank nonsense? [That does sound queer in so reliable and scientific a bee-paper as our esteemed cotemporary the *British Bee Journal*.—Ed.]

IN *Wegweiser* is reported the case of a child brought up on the bottle. Equal parts of milk and water were used, sweetened with honey. In 7 months the child had consumed 25 lbs. of honey (nearly 2 oz. a day). Later the proportion was 4 parts milk to 1 of water, the honey still continued. The child was very hearty, sleeping the whole night, and being remarkably free from the usual ills of childhood.

THAT HONEY is used for a coloring material, *Illustrierte Monatsblätter* rightly says, is not generally known. The coloring of agate depends upon the porosity of the individual layers of the stone, which are capable of absorbing liquids. The stone lies several weeks in dissolved honey, and is then boiled in sulphuric acid. The charred honey colors the stone black where of greater porosity, gray or brown where of less.

AT MEDINA you like horizontal wiring. So do I, if I could get combs built clear down to the bottom-bar. Can you do that at Medina with horizontal wiring? [Yes, and no. It depends on the season when such frames of wired foundation are given to the bees in the



first place. I have taken a set of Hoffman frames, and laid on them two strips of wood, turned the hive upside down on the bottom-board, and let the hive remain upside down for two or three days during the height of the honey-flow. It does not take long for the bees to force the comb clear up to the bottom-bars in this case.—ED.]

DIE BIENE reports that H. Heimberger had 4000 combs built from cylinder foundation, and 1000 built from foundation made in a foundation-press. The latter were the only ones that did not stretch out of shape. [By "cylinder foundation" I suppose is meant that which comes off from ordinary foundation rolls. The ordinary article I have seen, that comes from the press, has a thicker base and much heavier walls than that which comes from the rolls. If this is the case, of course the former would not be as much inclined to stretch as the latter. Foundation from rolls, as a general thing has lighter walls; and I should incline to the opinion that it is not a question of rolls or plates, but a question of cell-walls in the first place.—ED.]

A PUTTY-KNIFE of overgrown size is greatly liked by S. E. Miller (*Progressive Bee-Keeper*). Handle and all, it is nearly a foot long; will pry apart bodies with ease and without a snap, and will scrape burr-combs from two top-bars at once. It is made of  $\frac{1}{8}$ -inch steel,  $2\frac{1}{2}$  broad at the end, tapering to  $1\frac{1}{4}$  inches 6 inches from end, or where handle begins. The handle is made of two half-round pieces of wood riveted on like handles of butcher-knives.—[Our people at the Home of the Honey-bees use, as a general thing, a putty-knife for a hive-tool, seeming to prefer it to any thing else. Although I have handled a variety of hive-tools, yet they all seem to be laid aside, and the good old-fashioned putty-knife is used.—ED.]

AN ERROR that seems to have more or less credence among those who might easily know better, if they would use their eyes, is that a post-constructed queen-cell consists of three cells made into one. It is never any other than a single worker-cell enlarged. The usually reliable *British Bee Journal* admits an article with the error aggravated by speaking of the queen laying in cells "consisting of three cells turned into one." [You seemed to be surprised once because I did not know what "post-constructed" and "pre-constructed" cells were. Well, now, I am not going to say whether I have forgotten or not; but methinks you had better make a definition of both, so we can have it incorporated in GLEANINGS and in the A B C book.—ED.]

MY HEART is singing with gratitude this 18th of July. Last night we had a glorious rain to break the terrible drouth. For weeks no rain, and for many days up to 98° to 100°, one day reaching 105° with an incubator thermometer. The honey crop is a failure, some other crops as well, but there's lots to live for yet. It's worth while to be roasted a while to find out how good a thing a drenching rain is. I'm now writing on the piazza at 9:30 A. M., with the thermometer at 83°, and it seems

so nice and cool. [On my trip from Colorado eastward I took occasion to ride through Kansas and Nebraska in the day time, because I had heard about the awful drouths in those two States, and I wanted to see for myself. Sure enough, the corn was beginning to show the effects of the drouth, and no mistake. But, fortunately, I soon had the pleasure of seeing the gathering clouds, and in a day or two afterward I heard that those two States had had a good shower; but it would take a number of them, I should judge, before the thirsty ground would have enough to put things on a boom again. When I got into Iowa I found every thing parched just the same; and at Des Moines the lawns were all brown. It had been found to be practically useless to sprinkle them, as the heat was so intense. As I moved eastward I could see more and more evidences of rain; and when I got into Ohio, my dear old State, the ground was nice and moist, and every thing on a boom. While in the mountain States the ranchers in the valleys were discussing the drouth in the States east of them, and were congratulating themselves because they could have water, and plenty of it, any time they opened their irrigating-ditches.—ED.]



"Whew!" says Denver; "t's getting cool;  
It's down to 96;"  
"I fear we'll melt," says Illinois;  
"It's up to 96."

W

In the previous issue I spoke of an article appearing in the *Australian Bee-keepers' Review*, credited to J. E. Crane. W. Z. Hutchinson informs me that said article first appeared in the *American Bee-keeper*, of Jamestown, N. Y., our Australian friends failing to give proper credit. I am glad Mr. Hutchinson noticed the error.

W

#### REVUE UNIVERSELLE D'APICULTURE.

As Mr. Fisher's regular article, Bees in Law, does not appear in this issue I thought that it might not be uninteresting to the readers to know that this matter has been before the French courts, and constitutes a very considerable part of their jurisprudence. The questions arising in regard to swarms have been matters of judicial action since the days of the Romans at least; and out of a great many precedents we have to-day the law as it stands in France. I make a translation of only the essence of some decisions thus far arrived at, omitting the dates of the laws.

As to the right of pursuit, the owner has the right to capture and relieve a swarm so long as he has not ceased to follow it. This confers on the owner of the hive the right to follow, in preference to that of any other person. The legitimacy of this right is recognized in

all legislation, and can not be contested. It is evident that the swarm belongs to the owner of the hive whence it issued, so long as he has not abandoned pursuit, for he thus shows his intention to keep what has never ceased to be his property.

Can the owner of a swarm chase it by proxy? We do not believe a man can be compelled to chase his swarm in person. No law prescribes that; and no one can in right refuse the right of pursuit to one who, unable to do so himself, authorizes a second person to take his place.

As to following a swarm on uninclosed land, if a swarm alights on such ground the bee-keeper may follow it, but is responsible for all incidental damage. If the land is fenced, the pursuer has the right to claim and retake when entrance to the farm has been accorded. But how shall one act when permission is refused? In that case he goes before a justice of the peace and gets out a "letter of delay," in view of the urgency of the case, summoning the owner of the land before the court, ordering him to give up the swarm or pay for it. It has been decided that one who refuses to the owner of a swarm the right to have access to his land, even when surrounded by walls, and whereon the bees have lodged, becomes responsible for the damage caused by this refusal.

In regard to following a swarm lodged in an empty hive, such swarm belongs to the pursuer, at least so long as he has not abandoned pursuit. In such a case, no right can take priority over his own; hence he may take the swarm, without hesitation. But suppose the hive is already occupied, what then? It often happens that a swarm, in quest of a home, attacks a feeble colony, or one ill defended, overpowering it by main force, and, after a regular siege, occupies the hive. The pursuer, in this case, finds it impossible to identify or retake his own bees; for how can he tell his own bees from the others? It has then been generally decided that the swarm should belong to the owner of the hive where it is lodged, and without indemnity to the pursuer, who has gained nothing, but lost the greater part of his bees. The Roman law did not confer the right of pursuit except when the chase was easy. The French law seems to confirm this, as it presupposes the possibility of retaking the swarm.

On whom is it incumbent to prove the ownership of the swarm? In cases of dispute with the owner of the land on which the bees have settled, it is for the owner of the bees to prove that they came from his hive. The owner of the land finds himself the owner of the bees unless he has by fraud enticed them, or unless the owner of the hive has given up pursuit. This decision conforms to the old laws, and especially to the Ordinance of Louis IX., in 1270. Ordinary proof by witnesses is admissible. But it often happens that witnesses were not on hand at the time the swarm issued; but for all that, reasonable presumption must be allowed.

The pursuit of bees may be interrupted by a temporary obstacle, such as the coming of

night or the passage of a stream of water. But the right to follow is maintained in this case, but on condition that the owner of the bees shall resume pursuit as soon as possible—for example, in the morning or when the stream is crossed.

The right to follow ceases with the abandoning of the pursuit.

Has everybody, like the owner of a colony, the right to follow an abandoned swarm? It would seem, at first sight, that such a swarm belonged to nobody; that the first one coming might follow it as well as the original owner. But this opinion can not be sustained; for, as Mr. Varembeys says, the right to follow, accorded by the law of 1889 to the owner of a hive casting a swarm, is an exceptional right which can not be extended to other cases. The pursuit should not be confounded with occupation, the latter consisting only of the real taking of the bees. Everybody may follow, without doubt, an abandoned swarm, without having a real *right* to follow, including all the results arising therefrom. He who, then, is the first to take possession of an abandoned swarm becomes thereby the rightful owner to the exclusion of all others.

In reference to an abandoned swarm in simple repose, such swarm, before choosing a habitation, frequently does not stop except momentarily for a rest. In this case who is the owner? The law is silent in this case; but there is no doubt that the swarm, having regained its natural liberty, should be considered wild, and the property of the finder.



#### NOTES OF TRAVEL.

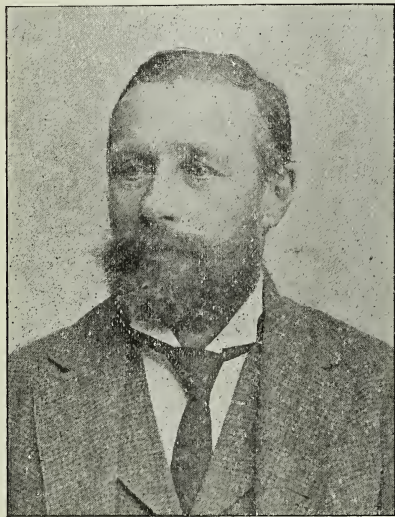
A Visit with L. Stachelhausen and Louis Scholl;  
the Honey-plants and Honey-resources of  
South-central Texas.

BY E. R. ROOT.

After leaving Mr. Jenkins at Wetumpka, Ala., I took the train for San Antonio, Texas, going through Mississippi, Louisiana, and part of Texas without a stop. At the station I was met by a thick-set, full-bearded gentleman, no less a personage than L. Stachelhausen, of Selma, Texas. As a writer on bees in the journals of both America and Germany, no man is better known. Always practical, his writings show a marked familiarity with the bee literature of both continents. When, therefore, the person I have described modestly stepped forward and introduced himself as Stachelhausen it was with a real thrill of pleasure that I grasped his hand—a hand that knows well how to lift heavy supers of honey as well as swing the pen. He explained that he was serving on the jury, and hence was temporarily in San Antonio. As court had been dismissed for the day, and knowing the



hour of my arrival, he came down to the train. How we did talk over men and methods! He was still using his method of brushed swarms with success—something that he described in GLEANINGS some months ago. As Mr. Stachelhausen was to go on duty the next day I took the train for Hunter, Texas, where resides a young bee-keeper not yet of age, but who, nevertheless, has become quite well



L. STACHELHAUSEN.

known through the bee-journals. I refer to Louis Scholl, an intimate friend of another young bee-keeper, and equally well known — H. H. Hyde, of Hutto, Texas. These two enthusiasts have gotten up what is known as the Hyde-Scholl separator, a device which, if I may judge from results, is not without some merit. Some one let leak the fact in my ears that a pretty sister of one of the boys made the attachment all the stronger. What could be more natural than that one of the boys would contrive to see the other (boy) just as often as he could? But be that as it may, the two (mayhap the three) evidently have studied and planned many a little convenience for the apiary. Certainly the workshop of Mr. Scholl, which I saw, gave many evidences of it. There was a machine for putting starters in sections, and one for putting them in brood-frames. The last named is quite ingenious, and perhaps Mr. Scholl will describe it later.

Among other interesting things in the aforesaid shop Mr. S. showed me a very complete herbarium of all the honey-plants of Texas, with their names, and a brief note of their importance to the bee-keeper. It is the best collection of honey-plants for one State I have ever seen, and it serves to show the thoroughness with which our young friend has gone into the study of every thing connected with his pets, the bees.

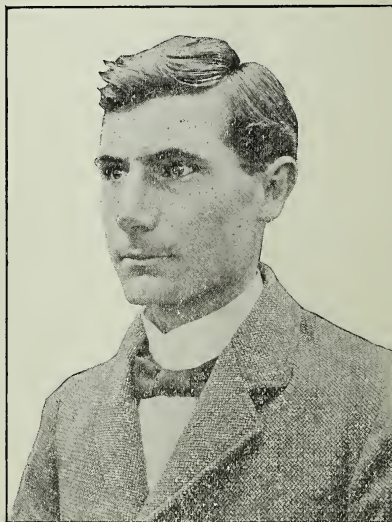
Of three of the most important for his part of the State, and on which he relies for his main crop, I took photographs from life, and nearly life size. These I present to our readers. Concerning each I asked Mr. Scholl to prepare a short note, and this he has done.

#### HORSEMINT—MONARDA PUNCTATA.

"Begins to bloom in May, sometimes a little later, June, depending on the season, such as a very dry and a backward spring. The honey is compared with that of the basswood of the North on account of its peculiar strong flavor which it resembles; is of light color; one of the best honey-plants of the South, and tremendous yields have been obtained. I have just gone out to procure some of the flowerets, and send same to you herewith. Perhaps you remember what you said about a chance for long tongues while taking the shot at the horsemint on our porch. I have been interested in this question, and can not see how short-tongued bees could ever get every thing that is nectar out of those long tubes. What do you think about it? Red clover not alone for long tongues."

#### MARIGOLD—(?).

"Marigold is one of our main honey-producers, yielding in May and June a rich golden



LOUIS SCHOLL.

honey, having a flavor that is liked by many and preferred to others. The honey is of a very heavy body, as sections of the plain ( $3\frac{3}{4} \times 5 \times 1\frac{1}{2}$ ) kind, filled the same as those with mesquite or cotton honey, outweigh these by over 2 oz., the heaviest weighing a little over  $16\frac{1}{4}$  oz. The comb also is of a golden yellow color."

#### HOARHOUND—MARRUBIUM VULGARE (?).

"Some time in February the hoarhound begins to bloom, lasting and yielding a steady

flow of nectar until very late in summer or until very hot and dry weather puts an end to it. The honey is of a golden color, heavy and limpid in body. It will be remembered that the honey from this source is generally proclaimed as being so bitter that it is worthless; but such does not seem to be the case with it here, as in some years quite a lot was produced, and sold too, without any complaints. The honey is really sweeter, or has such a sweet taste that it is nauseating to some. It has good medicinal qualities, and has been recommended as such by some persons having had good results after using."

As Mr. Scholl had no recent photograph of himself I made one of him. This picture, as originally taken by me, is half life size, and yet it was taken with a 7×5 folding kodak, without a ground glass, and weighing only 4 lbs. and 4 oz. It was pronounced so perfect by an expert in Los Angeles, who saw the negative, that he wanted to send it in for me to compete for the \$500 prize offered for such work, and this he has done. If this picture receives even honorable mention, friend Scholl can send a copy of it to that pretty girl, with my best compliments; but the prize money—I'll pocket that. I am not worrying what I'll do with the money, for I'll never get it, for the chance is as one in a thousand.

The other picture shows Mr. Scholl in his work clothes—rough and ready for work

among the bees. He is standing before one of his favorite colonies, prepared to open it. On the right will be seen a handsome bunch of cactus, just as it came up naturally. To Mr. Scholl and his people there was nothing rare or beautiful about it, as it is too abundant with its prickles to be at all pleasant. But I thought, what would a florist or a landscape-gardener of the North give for such a beautiful thing? How true it is that a prophet is not without honor save in his own country, and that familiarity breeds contempt, even for cacti!

Another thing that interested me was the Texas horned toads that were running over this apiary, and even over the buildings. These ugly things, more suggestive of his satanic majesty than any thing else, did not win my admiration as did the cacti. But the way they would dart about was enough to arrest the attention of any tenderfoot.

Mr. Scholl uses and prefers, I believe, shallow brood-chambers. He has been testing various styles of hives side by side for several years, and the more he experiments the more he inclines to the divisible brood-chamber, for the production of comb honey at least.

I did not go further north, as I had planned, to see the Hydes, as I saw that it would throw me out of my schedule, which had been too hastily laid out; so I bade Mr. Scholl good by and took the train back to San Antonio.



LOUIS SCHOLL AT WORK AMONG HIS BEES; EVERGREEN SHADE ON THE LEFT AND CACTUS ON THE RIGHT.



### THE SWARTHMORE SYSTEM OF FERTILIZING NUCLEI CRITICISED.

Is the Scheme of Small Nuclei for the Purpose a Permanent Success?

BY GEO. J. VANDE VORD.

My attention was arrested by the fascinating and alluring description of Swarthmore's effective (?) plan of getting queens fertilized from those little one-frame (section size) nuclei, described in GLEANINGS, page 434; and I almost found an old-time enthusiasm arising in me on the subject of mating queens from small nuclei; but a mental picture of past experience that was pretty full of shadows effectually cooled me off, and I began to wonder how many more of GLEANINGS readers had struck shoal water on small nuclei since A. I. Root first enthused on them, only to abandon them after using them for some time. It may interest those who see in his article a way to produce queens at a greatly reduced price, to read of some difficulties that

lie ahead of them in following his plan, and that he has entirely failed to mention.

For several years I was using, or trying to use, nuclei composed of from two to four sections, placing several together in one section-super, and having entrances nearly 14 inches apart—about twice as far as Swarthmore's—and differing from one another by having blocks of varying shape at every other entrance.

I found such nuclei to be all right for keeping virgin queens in up to the time of their flight; but an extra large percentage would at that time take to running around outside the entrances; and if the bees at the neighboring entrance should be fanning, she would run over there, presumably to see what the fun was, and quite frequently she would slip inside the entrance unopposed, to "visit with Cousin Kate," but, unlike Timmy Doolan's cat in the comic song, she would never come back.

Then there is always, by any system, a percentage that get lost when taking their flight; and by Swarthmore's plan the nuclei from



TEXAS HORSEMINT; ONE OF THE PLANTS THAT HAS LONGER FLOWER-TUBES THAN RED CLOVER.



which these queens come are a source of danger to the neighboring queens, as they are very much given to running across to the nearest entrance having a queen within, leaving barely any bees to care for the few cells of brood in their old home; and while, if honey is coming in freely, they will rarely do any harm, yet if it is not, they are very apt to ball the queen they came to pay homage to, within two days, if she should not have begun laying. If she has begun laying, then the addition to the number of bees in the little nuclei only hastens a danger that is always present with very small nuclei, of the queen and bees swarming out and completely deserting their home, brood or no brood, honey or no honey, on account of its small size and entire unfitness to retain a normal colony, of which the bees often seem more aware than their owner.

In those cases where the queen gets safely

through the previous dangers, and begins laying, she will scarcely have been laying 24 hours, when, becoming discontented with her small accommodations, she must be quickly removed or fastened in by entrance-guards if she is to stay where the bee-keeper can put his fingers on her.

If black or hybrid bees are used for forming the nuclei, the danger from the bees running from one entrance to another is greatly augmented.

I have sometimes seen the bees from one of these little nuclei, after losing their queen on her flight, come out in a string and run to their nearest neighbor, fanning their "queenless" note, and entering without opposition, staying only a short time, evidently searching for their lost queen, when out they came, and on to the next entrance; and whenever they will go in, and yet not stay, you may confidently open the nuclei to take out a balled



MARIGOLD, ONE OF THE PRINCIPAL HONEY-PLANTS OF TEXAS; BUT FOUND ALL OVER THE UNITED STATES.



TEXAS HOARHOUND STALKS (LIFE SIZE) WITH SMALL, WHITE, STAR-LIKE FLOWERS.



queen; and sometimes, even when they stay, the queen disappears in a few days.

One swallow does not make a summer, nor does success with an occasional bunch of these small nuclei, when every thing is favorable, and the queen and bees happen to refrain from "visiting," warrant the conclusion that such nuclei are both practical and profitable.

I'll warrant the opinion that there is not one in four of the queen-breeders of to-day who has not tried and discarded some such plan of running little nuclei; but there are few who will rush into print to tell of the things they have tried and found unworkable. We all know that a queen is very reluctant to lay in a single comb; and many young queens will swarm out after becoming fertilized, and arriving at the point of laying, rather than begin in a frame that is not protected by combs on each side of it; and this is especially true of single combs that are smaller than half the size of a Langstroth frame.

His directions for collating a large number of queens in one hive (magazine hives, page 506), will work for only a few weeks, and then the bees will favor one of the queens, and neglect or even destroy all the rest. That is my experience, at all events.

Daytona, Fla.

[It is possible and even probable that most people will fail in getting queens fertilized in nuclei as small as Swarthmore describes, and especially so many of them so closely put together; but there are several who have made a success in having queens fertilized in small three-comb nuclei of no larger size than three  $\frac{1}{4}$  sections.

Herman Rauchfuss, of Colorado, told me, when I called on him recently, that he had succeeded in having 6 out of 8 queens fertilized in these little three-comb boxes. He divided off an ordinary super into 8 compartments, each having three little combs of the size of a section honey-box. There are two entrances on each side, and two on each end. In these little nuclei he not only had queens fertilized, but confined them and

kept them there by the use of perforated metal after they had begun laying eggs. Two years ago, when I visited Mr. Rauchfuss I took a photo of him, his little girl, and the queen-mating super, one of which he is holding in his hand. Its general mode of construction will be apparent from the engraving.

Mr. E. F. Atwater, of Meridian, Idaho, was using something quite like this when I called on him recently, and he was making a success of it; and in a letter received from one of the best queen-breeders in the country, Mr. W. H. Pridgen, I found he has also used something similar and made it work; and you yourself, I believe, have accomplished it, but you do not consider it a reliable plan. But Swarthmore has gone one step further; and instead of having three little nucleus frames he has only one, and that a little larger size. If it is possible to make the others a success, *perhaps*, with the right management and the requisite amount of skill, one could make the other. This is a matter of considerable importance; and if bees sufficient to cover one or two Langstroth frames, and equivalent brood, can be made to have six or



MR. HERMAN RAUCHFUSS SHOWING HIS QUEEN-MATING SUPER.

eight queens fertilized where only one would be ordinarily, then we have made a step in advance. Swarthmore's method may be open to criticism; and if so, let those who have had experience enlighten us, for it is only by discussion that we can get at the full truth.—

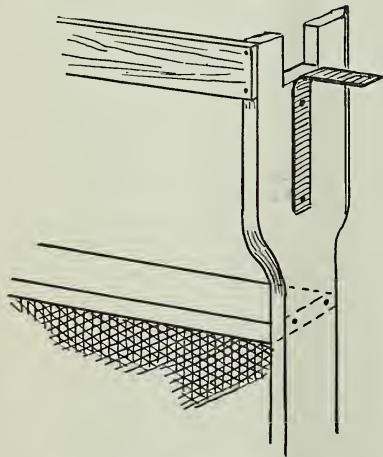
*Later.*—We have just received word from Carl F. Buck, of Augusta, Kan., who has been trying the Swarthmore methods, that he had "just taken from ten Swarthmore nuclei boxes nine queens. I attached the boxes to brood-chamber above an excluder. Will you please let me know what you actually think of the fertilizing of queens in Swarthmore nuclei boxes, attached to upper chamber above excluder?" Answering your question, A. I. R. feels sure that the one-comb section-box will not generally prove to be a success.—ED.]

### THE SWARTHMORE SYSTEM OF QUEEN-REARING.

Continued from last Issue.

BY SWARTHMORE.

With open-top frames and shell cups, all one needs to do, when he wants queens or cells, is to roll the sheet back a bit and draw one or a cageful—no smoke, no stings, no undue disturbance to the bees, no laborious work in the hot sun, no fear from robbers—just the simple act of "drawing one;" then replace the hive-cover and come away. One has all he needs, without lifting a frame.



HOFFMAN BARLESS FRAME.

The above shows the manner of converting a Hoffman frame into an open-top or barless frame for receiving nursery-cages.

It might be well to say, that the sheet should be split directly over the "open frame," then it is not necessary to skin the entire surface of the frames every time one needs a cell or a queen, or a cageful of queens.

To convert a Hoffman frame into an "open frame," remove the regular top-bar and fit a

$\frac{3}{8}$  strip between the end-bars, two inches below. Screw brackets of strap iron firmly on to each end-bar, as shown in the sketch, to form ears for the support of the frame in proper position. One thin strip nailed edgewise on to the flat edges of the end-bars will suffice to steady the cages.

### MAKING PLUG-CUPS.

The molding of the plugs ready for compression can be done on cool days—when a little fire is welcome, you know. I prepare 500 to 600 plugs at a time, and do them all at one melting, thus:

The top-bars are laid flat upon strips of tin in lots of 50 or more, and the shells are stood upon end in shallow trays, in lots of 100 or more. The melted wax is then poured into each hole very quickly, with a long-nosed ladle or small coffee-pot. If one is skillful and neat, very little shaving will have to be done afterward.



BURNISHING OR FORMING STICK.

A hand tool for mending and smoothing plug cups.



HAND CELL-COMPRESSING TOOL.

The above is for reshaping cell-cups, or for queen-rearing on a small scale by the plug-cup plan.

As soon as the wax has cooled hard, strike the top-bars on the bench, and the tin strips will drop off, leaving a perfectly smooth surface upon the face of each plug; then they are ready for the compressor any time.

The advantages of compressed cell-cups over dipped or molded cell-cups are many. First, they are not so fussy to prepare, and they do not require so much skill in the making; second, they are not delicate waxwork—the bugaboo of such a clumsy fellow as myself. The average bee-keeper can readily operate a cell-compressor where the dipping of cells would be an utter failure with him. Third, compressed cell-cups will stand pretty rough usage without being injured, where the



least little mishap will ruin a whole row of dipped cell-cups. Fourth, compressed cell-cups may be worked over and over again—they are practically indestructible, either by the bees or the bee-keeper himself. Fifth, compressed cell-cups are marketable and mailable; they are also practicable to both maker and user. Being encased or surrounded with wood they are protected at all times. Sixth, compressed cell-cups are readily mended by simply smoothing them a bit with a forming-stick and a little spittle; both of which are always at hand. Seventh, the making of compressed cell-cups is comfortable work, while the dipping of cell-cups is exasperating—especially during a hot summer's day. Eighth, in the wholesale dipping or molding of cell-cups an endless list of paraphernalia (hot wax, fire, water, steady nerves, etc.) more or less intricate and ingenious, is necessary; but with compressed cell-cups only the one simple hand tool is required, which any child can work.

The "shells" are designed to fit the holes in the top-bars of the Swarthmore cages to render the cells easily removable; but with a drop of wax they may be stuck on to any thing anywhere.

Suppose one is starting a batch of cells. If one or two cells should fail they may be replaced with others that are on the way toward development, thus saving much cage space.

And, again, suppose the apiarist desires a hatching cell, he can at any time draw one from any cage, without taking the cage apart or even lifting out a frame—simply roll back the sheet of the hive containing the cageful, and—there you are. Draw one, close the hive, and all is well—no trouble—not even smoke being necessary.

[These tools will form cells very quickly; and it is surprising how perfect and smooth they can be made.—Ed.]

#### PRODUCING COMB AND EXTRACTED HONEY IN THE SAME HIVE AT THE SAME TIME.

The Use of Divisible Brood-chambers.

BY LOUIS SCHOLL.

Having described the hive I use, page 591, it will, perhaps, be of interest to some to know how colonies in such hives were managed for the surplus honey. As I have a demand for it, my object is to produce both comb and extracted honey, and, instead of manipulating a certain number of colonies to produce the required amount of comb honey, and using other colonies solely for extracted honey, as is generally done, I have found that I could produce both at the same time with all the colonies, and with greater satisfaction.

Now, before giving my mode of operation for the season I wish to state, as there is a difference between our seasons here in the South, that these rules will not apply to the North, and will, therefore, have to be changed accordingly. Then, too, as we have such changeable weather here in Texas our honey resources are not alike each season, so each

must know his locality, study his honey resources, and must also know when to expect his honey-flows. He must also have every thing in readiness beforehand, by having his supers and every thing else in shape when a flow happens.

The fall before, all colonies are put in order for winter in three-hive sections, with plenty of honey. Each colony must have a good queen to keep up a strong colony of bees during the season; and, indeed, much depends on what kind of queens we have. We can not afford to keep any but good ones.

No further attention is given till about February, or when we expect continuously warm weather. Then we overhaul the bees to see that all are supplied with sufficient stores to last till the main honey-flow; for as pollen and honey have been coming in, brood-rearing is going on rapidly now, and during this time more honey will be consumed than at any other time of the year. To examine the colonies, simply pry apart the two lower cases. By tilting the upper one back we can easily ascertain the strength and condition of the colony, which we note. If some are found short of stores, these are provided either with combs of honey, or fed diluted honey or sugar syrup. All queenless colonies are supplied with good queens as soon as possible, and, if none are on hand, they are purchased of some reliable queen-breeder.

After all are in proper order they are let alone for a few weeks; and when the weather is warm and favorable, and honey coming in (we generally have enough honey coming in all along to keep up brood-rearing, and sometimes we get some surplus), we again go through all; and, taking off the top (or third) story, we go through the brood-chambers, putting all combs with honey in the top, or the third super, and all the empty combs in the two chambers of the brood-nest, arranging the combs so as to spread the brood, and to push brood-rearing, as we want a great force of bees just at the beginning of the main flow, which with us is about the first of May. The other super, containing the combs of honey, is now set on top. This operation will generally be done at about swarming-time in the month of March, sometimes sooner or later, depending on the earliness or lateness of the season; and at this examination, if some colonies are overpopulous, combs of hatching brood are taken from them and used either to strengthen weaker colonies or for making nuclei. If some of the colonies have already started queen-cells they are destroyed or otherwise as the case may be. I have already said something about swarming; but with such a large brood-chamber, and providing plenty of room for the queen, there will be very little if any swarming; but I gave the foregoing for the "exceptions." Now comes the time of our main flow, which is just beginning; and if every thing has been favorable we shall have strong colonies with a large force of bees; and, besides having had plenty of honey for breeding purposes, they will have some surplus stored in the shallow extracting-super above.

We must now hurry and get on our comb-honey supers; so, taking our section-supers, which we had all nice and ready, with foundation in the sections, and an extra Danzenbaker reversible bottom-board, we proceed as follows:

First set one of the section-supers down, and on this set the upper (or third) case of the hive, without removing the cover. Then move the two lower chambers, bottom-board and all, to one side of the stand, and in its place put the extra Danzenbaker bottom—the deep entrance side up—putting on this the upper one of the two brood-chamber cases, and on this the lower one, thus cutting the brood-nest in two, thereby putting the honey in the upper frames in the center of the brood-nest for the bees to remove, while the upper frames now contain brood.

The two other supers, the section super with the extracted-honey super above it, are now set on top of the brood-chamber. Here are two features with which I am greatly pleased; namely, in having bees first used to storing in shallow extracting-supers; and when the section-super is put in between this and the brood-nest, they go right on to work in the sections without losing any time; and I have also found that nicer and fuller boxes of honey can be produced between such a super than where the cover is directly over the sections. Then by using shallow extracting-supers during the time before the main flow, as we have honey coming in nearly all the time, and sometimes a little more than is necessary for brood-rearing, it is stored in these supers, leaving plenty of room for the queen, while otherwise it would have to go to waste or the bees would store it in the brood chamber, thereby crowding out the queen. With a set of these frames above, too, if a colony has more honey in the brood-chamber than is needed, the bees, when providing room, will carry the honey up into these frames, also bringing the brood up closer to the top of the frames.

Of course, something has already been said about this plan, now known as the "Barber" plan, which was also my own idea. Another feature in forcing the bees and the honey into the sections is by reversing the two brood-cases, cutting the brood-nest in the middle, and putting the honey of the upper frames below, and a large space of brood right under the sections. If the honey-flow continues long enough, this reversing can be done at certain times during the main flow, and all of the honey forced into the sections. This I do not practice to any great extent, as there is sometimes danger of not having sufficient honey below for the winter, as we are not always sure of a later or fall flow.

Now our main flow is over, and we will now proceed to take off the surplus. The shallow-frame super I leave on over the sections during the time, as the bees finish the sections up nicer. Some advise removing the frame-super when putting on sections; but I prefer to let them remain, for the reason given above, and then the extracted honey is much nicer, being well ripened. All of the supers are then re-

moved, the section supers piled up until we have time to tend to them, while the honey of the shallow frames is extracted and the supers put back on the hive.

I have *sometimes* put these in between the two brood-cases, and, when the bees clean up these combs, they provide lots of breeding-room for the queen.

Right here, if I am not mistaken, is something that bee-keepers in northern localities would not think of practicing, hence their talk about useless consumers. But as our season is of such a nature that we have another flow later, after the first main flow, with several weeks of no honey, or very little, between, bees must breed up so as to have sufficient numbers for that last flow.

Having said this much, and hoping that my management is clear, I think each could modify it so as to be used in any locality.

Hunter, Texas.

[The honey season is holding out in and near Medina in a most remarkable manner. The honey comes from red and sweet clover. —Ed.]

### CONVENTION NOTICE.

All arrangements for the next convention of the National Bee-keepers' Association have been completed so far as possible, and the convention will be held in the audience room of the Buffalo Society of Natural Sciences, Sept. 10th, 11th, and 12th; commencing on the evening of the 10th. The place of meeting is in the Buffalo Library building, corner of Washington and Clinton Streets, near the business center of the city. The president of the Natural Sciences Society, Mr. Smith, has also kindly offered our Association the use of their library and other committee rooms during the time of our convention, and to do all in the power of the society to help make our meeting a success.

Railroad rates will vary in the different passenger association territory, from one cent per mile each way to one and one-third fare for the round trip. Each person can readily learn the rate on inquiry at his railroad station.

The Buffalo bee-keepers will try to provide entertainment at reasonable rates for all attending the convention, who will notify Mr. Sydney S. Sleeper, of Holland, N. Y., by Sept. 2d, of their wish for entertainment.

In a letter just received from Mr. Sleeper he says, "We want all to come who can, for we wish to make the Buffalo meeting the most pleasant and instructive one that was ever held in America. We will have the co-operation of all the sciences as well as the school board," and names some professional men who are interested in our specialty and will be at the convention to help.

In a long letter from Mr. Herisher, just received, he closes by saying, "Call upon me for whatever further assistance I am able to render," and Mr. Penton, an ex-president of the Erie County Bee-keepers' Society, and others, have offered to do all they can to provide for the comfort of the delegates.

As stated in my previous convention notice in GLEANINGS, there will be no fixed program and no papers, and the time will be occupied in answering and discussing questions, except that on Thursday evening there will be a joint session of our association with the American Pomological Society, to discuss "the mutual relations of bee-keeping and fruit-growing," and Prof. Beach, of the N. Y. Agricultural Experiment Station, and Prof. Fletcher, of the Central Experimental Farm of the Dominion of Canada, will help talk for the bees at that session, and it is hoped that much good will result to fruit-growers and beekeepers from this joint session.

If any bee-keeper who can not be at the convention has any questions, knotty or otherwise, he would like to have answered at the convention, will send them to me I will see that they are presented.

A. B. MASON, Sec., Sta. B, Toledo, O.



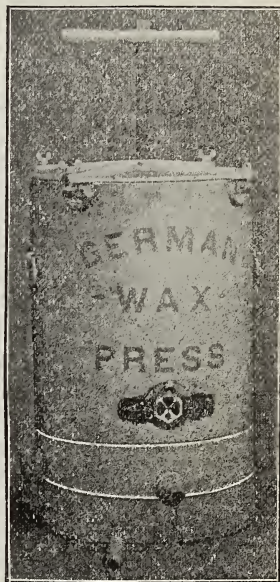
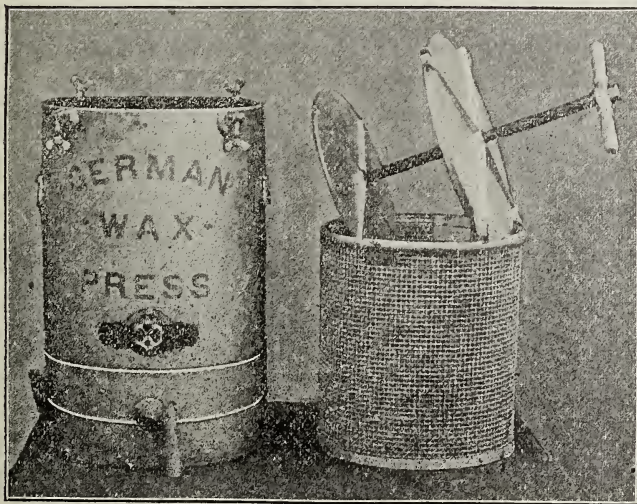
## THE ROOT GERMAN STEAM WAX-PRESS.

BY E. R. ROOT.

We have been making and selling for two months back a steam wax-press that embodies all the best features of the most improved German machines that have given such excellent results for the last ten or twelve years. The illustration herewith shows the complete machine as we now make it. It is all metal, galvanized, and is strongly built. The cover is of cast iron, ribbed and braced, and is held

particle of wax is pressed out. The basket is dumped, and the operation is repeated as before.

It is advisable to use a sheet of burlap or cheese-cloth to line the inside of the basket during the process of rendering, otherwise the cocoons will be forced between the meshes of the coarse wire cloth. A finer mesh of cloth would not stand the enormous pressure,



securely in position by four thumb-screw lugs. Through this head passes a powerful screw; and on the end of this screw a plunger plate is pivoted. The basket is made of strong heavy galvanized wire cloth, and is securely hooped and riveted. To stand the enormous pressure of this screw a cast-iron spider is riveted inside of the can, about 8 inches from the bottom.

To use, the can is placed on a common stove, and is filled with about 3 inches of water. The wire-cloth basket is filled with old comb, slungum, or any wax refuse. The water is brought to a boil, when the basket with its contents is set down into the can. The handle is unscrewed until the pressure-plate rests against the cover plate. This is then set down on top of the can, and the water is allowed to boil. The steam generated passes all through the mass, and when the wax in the basket settles down, more refuse is put in. After all the free wax is steamed out, the screw and plunger-plate are turned down. One person grasps the two handles of the can, and another one turns the screw down until a tight squeeze is exerted. It is then left for a little while when another squeeze is applied, and so alternately for a period of 15 or 20 minutes. The screw is then raised up, and the slungum is poked over with a stick, and again pressure is applied. By this time every

and hence burlap or cheese-cloth in connection with a coarse wire cloth should be used.

This machine is large enough to hold about a bushel and a quarter of comb at a time; and in connection with a solar wax-extractor it will handle the product of from 500 to 1000 colonies.

## MARKETING HONEY.

Fumigating with Bisulphide of Carbon.

BY EARL C. WALKER.

The marketing of honey is one of the most important questions which confront the honey-producer. Many bee-keepers are successful, so far as producing honey is concerned, but comparatively few are eminently successful in marketing it. One may toil throughout the season and obtain a big crop, and a really fancy article of honey, but, through slipshod methods in putting it up, will receive pay for a second or a third class article. Too many think that, as soon as their crop is taken off from the hives, their season is over and their work ended. They are utterly indifferent as to how it is put up or how it should be marketed so as to bring the highest price.

When the producing season is over, the bee-keeper's labor has really just begun. The

bees have produced the honey, and *he* should see that it brings all that it is worth, by properly marketing it. It requires experience and skill to produce a gilt-edged article of honey, and it requires business tact to market it, and, of course, experience too. I wonder why some easy-going, slipshod bee-keeper doesn't breed a bee that will market his honey for him.

The most important item in marketing any thing is to have a good article, and have it put up in as attractive a shape as possible. My experience has been that a fancy grade of honey—yes, and an ordinary grade too—will sell itself. When a customer, either retail or wholesale, learns that he can depend on your honey as always being first-class, you can rest assured that he will continue his patronage, and he will pay you the right price too. If he tries to cut the price, let him know that you are independent, and that your honey will sell anywhere, and that others will be glad to get it. When he learns that you give him his money's worth, and that he gets just what he pays for, he will gladly buy of you.

Let us suppose we have secured a crop of comb honey. I will tell how I prepare it for market.

As soon as the honey is taken from the hive I fumigate it. I use carbon bisulphide, as sulphur is apt to discolor the comb, and, if too strong, leaves a disagreeable odor. For a fumigating-box I use a large ice-box or refrigerator, which is lined with zinc and is practically air-tight, except that it has ventilating-holes at top and bottom. When supers are well filled I place them bodily, as they come from the hive, into the bottom part of the fumigating-box, in such a manner as to allow the free circulation of the fumes about and through them. If the supers are not entirely filled, I of course place only the finished *sections* in the fumigating-box. I then place an open vessel, filled with bisulphide of carbon, in the top part of the refrigerator, and close the door. The fumes settle and circulate around the honey. It takes about an hour for the fumes to fill entirely the large fumigating-box. As soon as they have, I close the ventilating-holes, thus stopping all drafts, and let the whole thing alone till morning, or for a period of from eight to ten hours. After this time every vestige of a moth worm or egg will have been destroyed. I then remove the vessel of carbon bisulphide and open the ventilators, and, as soon as all fumes have passed off, the honey is ready to be removed.

The honey is then stored in a warm room on shelves, and allowed to sweat. The room should have screen doors and windows, which should be opened to allow a free circulation of air.

Next the sections are scraped, all propolis and stains being removed. As the sections are cleaned the honey is graded. I use three grades. Then it is put into 24-lb. single-tier non-drip shipping-cases with glass on one side. It doesn't pay to "face" the crates. Put sections next to the glass that are a fair sample of the rest of the honey in the whole crate. I have bought honey, as well as produced it.

Nothing is more aggravating than to buy honey at a fancy price, and find "gilt-edge" sections next to the glass, while the remainder of the case is second or third grade. It pays to be honest. The man who practices fraud and deception, in the long run cheats himself. When a small boy I raised a crop of pickle cucumbers. When they were ready for market I put them in bushel baskets, and I *faced* them too. I put all the little ones in the bottom, and the great big "stunners" on top. I drove to market, and was already counting the money I should receive for them. But the first grocer I showed my cucumbers to laughed, and said he could not use such large cucumbers. "No one wants large cucumbers for pickling—they want the *little ones*." I saw my mistake, and confessed that the baskets were "faced." We emptied them, and he bought all the small ones, and I took the big ones back home. There were not very many big ones.

This experience made a lasting impression. When I buy honey I don't want it faced. When I sell, I don't face it.

After the honey is crated I put a label on each case, stating grade, net weight, gross weight, and number of sections in case.

Being near my market I take a sample section of each grade and call on my customers or any dealers to whom I wish to sell. I show my goods and ask them if they wish to purchase. If they are not handling honey, and are in doubt as to whether they want to do so, I propose that they let me bring them a case on trial, and, in nine times out of ten, when I see them again they want more. I then sell for cash. I always sell my own crop, and then buy to supply the trade.

Last season I called on one of my old customers. He is a close man, and always wants to drive a close bargain. I asked him 13 cts. for my honey. He said the honey was all right, but the price was too high. I told him that the honey crop all over the country was short, and that my price was really cheap. He said, "Why, I can get all the honey I want at 10 cts., and it is fancy too."

I told him I should like to buy it at that, and that, if he could do so, he ought to get all he could at that price. I did not make any further effort to sell to him. In about six weeks he sent word that he would like to see me. I called at his store.

"Mr. Walker," he said, "what is honey worth?"

"A fancy article is worth 15 cts." was my answer.

"I will take 2000 lbs. at that price."

"I don't know where you will get it. I have sold all of mine, and should like to buy some myself," was my response.

Oh! but it did me good to tell him this. I asked him why he did not buy the 10-cent honey he had spoken of. He said, "Well, I didn't know the man who offered it to me; and as the price was so low I feared it would not be good."

Now he pays me my price, and is glad to buy of me.

New Albany, Ind.



# A SCENT-PRODUCING ORGAN IN THE ABDOMEN OF THE BEE.

The Scent Produced Forms a Means of Communication between the Members of a Swarm or Colony.

BY F. W. L. SLADEN.

The following is a summary of an article on the above subject, contributed to the *British Bee Journal*:

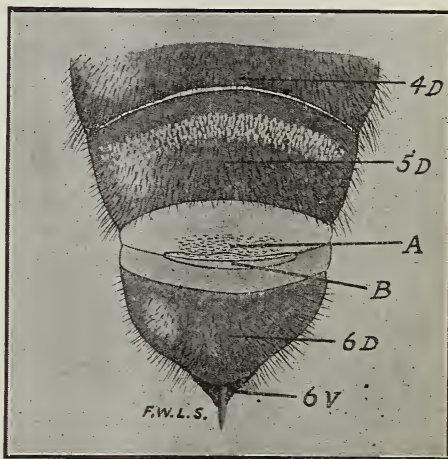
Last July, through the apparent absence of definite evidence that bees are able to hear ordinary sounds, I was led to investigate the phenomenon known as the "joyful hum" among bees. In "The Bee-keeper's Guide-book," 16th edition, page 26, we read, "The joyful hum of the bees as they enter the hive will entice others to follow." I asked myself the question, "Is it entirely the *hum* that attracts the bees, or is there any thing else that exerts the influence?" It was in endeavoring to answer this question that I was led to make certain observations, and to form a theory which I have been unable to find stated in any work on bees, and of which the following is a short account:

If a comb be lifted out of a hive, and the bees on it be shaken off on to the alighting-board, many of the bees will not at once rush into the entrance, but they will pause at the portal, and commence humming, evidently for the purpose of attracting their mates. When humming in this way the bee adopts a certain peculiar attitude. She stands with her head turned toward the entrance. She elevates her abdomen, and uncovers a narrow white membrane situated at the base of the 6th dorsal segment, which, when at rest, is entirely hidden, and covered by the 5th segment. As this membrane is near the extremity of the abdomen it seems but reasonable to suppose that the abdomen is especially elevated to give prominence to it. The "joyful hum," whether it is made, first, under the above circumstances; or, second, when a swarm is being hived; or, third, when a queen is accompanied by a few workers in a cage; or, fourth, when a young or tired bee discovers, after more or less difficulty, the entrance of her hive, is always accompanied with the protrusion of the above-mentioned membrane; and it then has the effect of attracting other bees; and when a number of bees hum in this way, as when a swarm is being hived, their attractive effect on other bees is very marked. On the other hand, when fanning is done merely for the purpose of ventilation, as at the mouth of the hive in very hot weather, the above-mentioned membrane is not, or, at most, is scarcely exposed, and no attractive effect seems to be intended or is observable.

After making the above observation it seemed to me clear that the membrane in question had a great deal to do with the attractive effect produced during the "joyful hum;" and, calling to mind the extremely meager evidence we have that supports the theory that the sense of hearing, as we understand it, is developed in either ants or bees, and, on the other hand, the strong evidence we have in

favor of the high development of the sense of smell in these insects (both points being confirmed, in the case of bumble-bees, by recent experiments of mine), I was led to form the theory that the membrane above mentioned (A, below) contains scent-glands, and that these produce a certain scent which, when the membrane is exposed, forms an important means of communication, by attraction, between the individuals of a colony or swarm. The fanning of the wings during humming would help to distribute this scent.

To endeavor to prove my theory, when hiving a swarm last July I put my nose close down over the mass of humming bees that were spread out on the hiving-board, to try to detect the suspected scent. I certainly smelled a curious, somewhat pungent odor, resem-



Tip of distended abdomen of worker honey-bee seen from above, slightly enlarged.

4D, 5D, 6D, 4th, 5th, and 6th dorsal segments.

6V, 6th ventral segment.

A, Nasonoff's organ.

B, long hollow depression on the outer margin of the same.

bling slightly the scent of formic acid that is produced when a nest of *Formica rufa* (the common European wood ant) is disturbed; and, though I was not able at the time to prove it, I strongly suspected that it was the scent produced by the above organ. A sweet "seaweed" scent, which I recognized to be of the same nature, was produced by a few bees accompanying a caged queen a few days later.

I then endeavored to cut off communication in a line of humming bees by dividing it into two parts by the interposition of a thin canvas screen charged with various kinds of scent, which I hoped would nullify the effect of the bees' scent, while allowing a free passage through it for the sounds they produced. If I could do this I thought it would, to a great extent, prove that "humming" bees communicate by the scent they produce, and not by their sound. This experiment had no definite result.

On March 13th of the present year, while dissecting the abdomen of a freshly killed bee in order to examine further the above membrane, I suddenly perceived an odor which I at once recognized as the pungent seaweedy odor that I smelled last summer in hiving the swarm; and in the queen experiment mentioned above I immediately separated the membrane with as little of the connecting tissue as possible, and placed it on a piece of card. I then placed the whole of the rest of the abdomen (except the sting and its appendages, which had been previously removed) on another card. The card with the membrane on it gave out the odor strongly for some minutes; but the card bearing the rest of the abdomen had no perceptible smell. I repeated the experiment with another abdomen, and it produced the same result. I consider that this striking experiment seems to prove the truth of my theory.

The membrane in question appears to have been first noticed as long ago as the year 1883, when Nassonoff, a naturalist of Moscow, described the organ, and an account of his description was sent by Zoubareff to the Swiss *Bulletin d'Apiculture* (translated by Mr. F. Benton, in the *British Bee Journal* for Dec. 15, 1883).

The organ is described as a canal. "At the bottom of this canal a large number of small glands open, each one of which has an oval cell with a well-defined globule. From each cell a duct starts out and extends to the bottom of the canal." Nassonoff further says that the walls of the ducts are of a chitinous texture. He assigns a secretory function to the glands, suggesting that they produce the perspiration. Zoubareff, while not absolutely rejecting Nassonoff's theory, connects the existence of the glands with the little drops of liquid that bees are said to let fall when they are on the wing, which, he says, represent the excess of moisture which nectar freshly gathered from flowers contains over ripened honey, and which, he thinks, is collected and then thrown off by these glands.

These ideas seem to be very crude, and would hardly be believed at the present time, but they are copied into the present edition of Cowan's "Honey-bee," which seems to indicate that the organ in question has not been further investigated since 1883.

In the accompanying illustration, the view represents the extremity of a distended abdomen of a worker honey-bee. *A* is Nassonoff's organ; *B*, a long hollowed-out depression at the outer margin of it.

I hope to send you a description of the structure of the membrane, with some further notes, in a later paper.

The following is a list of the chief works I have consulted:

*V. Buttel-Reepen*.—"Sind die Bienen Reflexmaschinen?" Leipzig, 1900.

*Cowan*.—"The Honey-bee." London, 1890.

*Cowan*.—"The British Bee-keeper's Guide-book," 16th edition. London, 1900.

*Cheshire*.—"Bees and Bee-keeping." London, 1886.

*Lubbock*.—"Ants, Bees, and Wasps," 5th edition. London, 1881.

*Packard*.—"Text-book of Entomology." New York, 1900.

*Zoubareff*.—"Concerning an Organ of the Bee not yet Described." *British Bee Journal*, 1883.

Ripple Court, Dover, England.

[I have repeatedly noticed that bees, when crawling toward the entrance *en masse*, would elevate the abdomen, as explained, but always supposed this was an act signifying extreme joy. I shall be anxious to watch the bees more closely this summer to discover whether there is something more than mere "noise" that attracts the bees and directs them to a common direction.—Ed.]

#### RAMBLE 188.

Struck it Rich Again.

BY RAMBLER.

I should be getting out of my element if I did not have to fold my cot and move; so, here I am on the wing again. "Where now?" do you ask? Oh! I am only going back to Los Angeles, that beautiful city at the southern end of the State.

"But, Mr. Rambler, you have not told us how much of a honey crop you secured."

Well, that is an inquisitive question; but if you must know, I would say that I secured a



"Do you think they knew what he was driving at, but I utterly ignored him. Why! I'd like to dump all the Millers I know into one of our hot sulphur springs and boil some of the gall out of them; but that is enough time wasted on the Millers, so just look at me now. Did the bee-men all

fair crop and a sack of coin. You'd 'a' smiled to see me enter the "City of the Angels." Land sakes! how "we apples" swarmed! new plug hat, new umbrella, new kid gloves, a monacule pants creased "fore and aft." Why! when I struck the town of Reedley a few months ago I told artist Murray how I felt, and you all know how forlornish he pictured me; but I forgive him. Then Arthur C. Miller had to chip in and tell me I "looked like 30 cents;" said if I'd come to Rhode Isl- and he would put me through a clam-

bake with very good results. I can't tell



around Los Angeles recognize me? Well, I guess so—especially the sack. Poor fellows! how hungry they looked! worse than 30 cents—no honey season, no sack, no coin. I was sorry for them.

Then what changes in a few months! There was friend Jim Crow. When I went north he was all Belgian hares—couldn't talk any thing but does and pedigrees; had 100, great and

of bee-keeping, but it pays. And, O ye frozen toed bee-men of the East, all of this brightening-up work was done in December and January, when you were clinging to the stove. You can scarcely imagine how lovely it is to hear the hum of the honey-bee all day long in mid-winter.

Just as I had got my work well done, and was setting out to "ramble" among my old friends in the San Bernardino country, a far cry came from the Simi Valley. Our friend Richardson, afflicted with poor health, needed some one to help regulate things in his apiaries. I heeded the call, and promptly made the 60 miles on my wheel. I found that the three dry seasons had diminished his 1200 colonies about a half, and there were over 12,000 combs to look after in several apiaries. Some of these had been piled up in blocks of bee-hives for two years, and several thousand in a sealed honey-house. Here was surely a study in the preservation of empty combs. We should think that those 250 hives full of empty combs piled five high in a solid block under a live-oak tree, and so long in a semi-tropical climate, would not have much more than webs and powdered refuse in them. In the first place, they were put in the hives just as an experienced bee-man would put them—spaced so that surfaces would not touch. As



"Then there was Brodbeck, just a trifle in the oil business."

small, and going right along to a thousand; but now it was oil stocks—couldn't say here; referred me to his wife—only 30 hares, and gradually declining.

Then there was Bro. Brodbeck, just a trifle in the oil business when I went away—worse now; all oil; reminded me of an oil-derrick—head turned; sacks of coin galore. Behold the effects of the oil craze. But, after all, Bro. Brodbeck is wise to hold to his bees also—good grit there.

After these pleasant greetings I made haste to visit my apiary in the secluded defiles of Durfee Canyon, and 69 colonies answered the roll call. There had been some rain before my arrival, but I gave them another liberal sprinkling with the contents of my sack of coin; and, how they brightened up! I don't know why it is, but a little coin here and there in an apiary is a wonderful help. Quite a few bee-keepers utterly ignore this feature



Song and dance by Mendleson and others. "Lovely rain; glorious rain."

a consequence, fully half of the combs were fit to use in the hives again. Now and then a column of hives would have every comb destroyed; others, webbed only in the center. Often a new bright comb would be found untouched, while those on each side of it were destroyed. I found the same conditions in the house. The photo gives a glimpse into the interior, and of the ragged combs. These combs had been sulphured many times, but they were

in worse condition than those piled under the trees. I had a helper a portion of the time; but for all that it was a great scrape—over 5000 combs to be cut out, and the frames cleaned. Well, we completed the job in fine shape, and there was a great pile of sacks of old comb, etc., to be rendered into wax.

You will notice that my helper is cutting out comb with a long knife; another is leaning against a hive. These are uncapping-knives, very long, thick in the center, straight shank, and heavy. A down stroke is intended with these tools.

An excellent machine for rendering this wax would have been the Ferris steam wax-extractor; but other plans and other parties were called into the work later. In Ventura Co. are some very expert men with the wax proposition. Three dry seasons, much loss of bees, much wax to render, has developed a

wide open), said my friend, "I believe I'd like to take a nip; how is it with you, Rambler?"

"No nip for me, my friend. I never nip."

And I walked right along.

"Well—w-e-l-l," said he, hesitating a little; "I guess I won't nip, after all."

After a little silence, said he, "Well, Rambler, that is what we may call the power of example. If you had entered the saloon with me we might have had several nips, hey? but I guess my appetite for breakfast is about as good without it;" and I noticed at table that he ate quite heartily.

When on the street again, whom should we meet but Mr. Mendleson? He came spattering along on a cart. Mud—just happy in mud; rubber boots, just the thing for rainy weather; lovely rain; going to have some more too.

Our accumulated force started out to hunt up some more happy beemen. We found Mr. Wilkin under his own vine and pepper-tree. He greeted us with his accustomed broad and genial smile.

"Why, Rambler, you must have rained down. What a glorious rain!"

We hitched another man to our crowd here and climbed the hill to Mr. Mercer's, and there, in spite of the great rain, we found him humped up in a rocking chair near a blazing hearth, all broken up with the grip.

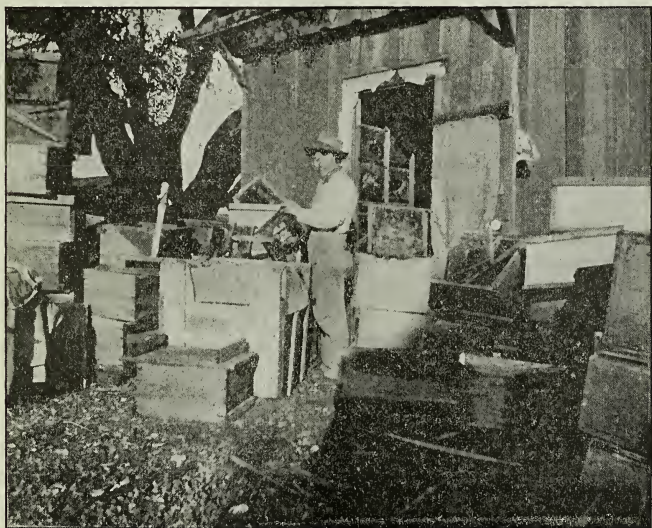
I always feel it my duty to cheer up the afflicted, and I told Mr. Mercer that I had a plan in mind that I thought would cure his grip. That brightened him up quite a little.

He had two carloads of bees and fixtures away up in Central California. It was high time they were moved south, but this grip had him fast.

"Well," Mr. Mercer, "my remedy is for you to go to Ana Capa Island. I am getting up a party to—"

"You get right out of this, Rambler; don't you mention Ana Capa to me;" and he tore around the room, shaking his fist at me. His wife, dear good woman, pacified him. "Yes, Rambler, you got me over there once, but you can't do it again. The grip—jinco—that's nothing like being seasick. Why, I can feel the way that old crazy schooner bobbed all over the ocean now. Don't you mention Ana Capa to me again."

I think the recalling of the trip to the island in 1894 had a very beneficial effect upon our friend. It roused him up, and I



RAVAGES OF THE BEE-MOTH.

new industry in the wax business. These experts pick up old black slumgum, and, in fact, any old thing that has ever been in a bee-hive, and they wring wax out of it. They claim to get 95 per cent.

I was denied the privilege of getting away from Bro. Richardson's on my wheel. Our great scrape wound up with a great rain; and the harder and longer it rained, the better we bee-men felt. Streams were swollen, roads washed out, trains delayed; but what of that? Plenty of rain means plenty of honey.

After several delays, and nearly a day for it, I reached Ventura, 40 miles. At one of the delay points I met a bee-man from San Bernardino Co., and he was happy too—rain, I suppose. We both stopped at the Ana Capa Hotel. We were out at about the same time in the morning, and took a stroll before breakfast. As we passed a saloon (of course it was



understand he started out in a few days and safely moved his bees south.

Our force marched back down town, and further calls upon bee-men were prevented by the arrival of the train; and I left, feeling as though I had some very good friends in Ventura, and no nips taken either.

Along with the pleasure of meeting friends in Los Angeles and Ventura there were also sad features. One of these was in finding a vacancy in the ranks of the bee-keepers by the death of Mr. C. C. Aldrich. He was always in attendance at our conventions, and was a thoroughly posted bee-keeper, and his name has appeared many times in the bee-papers. He was much of a genius in the matter of hives and management. His prime days of bee-keeping were spent in Minnesota, where he manufactured bee-keepers' supplies, and published a little book upon bee management. He came to California about ten years ago to spend his declining years. His apiary was at Elsinore, Cal.; and when not attending his bees he was selling his honey in a little honey-store in Los Angeles. His sign read, "Honey from first hands." Mr. Aldrich was a little over 72 years of age.



#### FEEDING BACK.

"Good morning, Bro. Doolittle. Can you tell me what is meant by 'feeding back'? I see something about this matter in one of my bee-papers, but I do not think I fully understand it."

"In order that Bro. Brown may know just what was meant, I will say that feeding back is the feeding of extracted honey, taken during the honey-harvest, back to the same colony from which it was taken, after the harvest is past, for the purpose of getting said honey stored in sections, the colony at this time having been fixed for section honey."

"What is that for?"

"The object of such a procedure is to get an article of a less price converted into one which brings a greater price. By using the extractor during the honey-flow, nearly twice the honey is obtained that would have been secured had the colony been worked for comb honey; but this extracted honey does not bring more than about half the price it would if stored in sections. Thus you will see that, if a way could be devised whereby the double quantity of extracted honey could be gotten into the same amount of comb honey, a great gain could be made."

"Yes, I see; and that is something after the idea I got in reading what I did. Say—that would be just the thing for me, as I have a lot of extracted honey on hand; and if I could turn it into section honey it would be a big gain to me. Tell me more about it."

"You get excited over the matter, just as the rest of us have during the past, and I know of no better way to tell you what I wish than to give some of my experiments conducted during the past."

"That is right. That is just what I wish to know about."

"When comb foundation was proven to be a success I thought here was a chance to make a profitable business by extracting my honey during the flow from white clover and bass wood, and feed it back during the time of scarcity between basswood and buckwheat. Accordingly, after the harvest of white honey was over I prepared three colonies that were strong in numbers, to one of which was given 44 sections with baits in the center, the same as would have been put on at the commencement of the season had I been working for section honey. The second was given the same number of sections partly filled from colonies which had not fully completed what they had in their hives, while a third was given the same number of sections with only starters of foundation in them. I now fed these colonies 15 lbs. each, which they carried off during the first day, and kept on feeding as fast as they would take it afterward until I thought the sections ought to be filled."

"How did the matter come out?"

"Those having the partly filled sections took 42 lbs. of honey before the sections were ready for market, and the 44 sections weighed about 47 lbs. when completed; but as they weighed some 32 to 34 lbs. when placed on the hive for feeding, you will see that I had fed 42 lbs. of extracted honey to make a gain of only 15 lbs. in the sections."

"Whew! Not much profit there."

"No; and when it came to the one prepared as we do those worked for section honey at the commencement of the season, I had to feed 134 lbs. before they were completed, or 134 lbs. to secure about 46 lbs. in the sections."

"Worse and worse! But what became of the one having only starters?"

"This part was never completed; for after I had fed them some 50 lbs. they only just got to building comb nicely, and soon after this comb-building seemed to get to be an old story, so that, after awhile, they simply lived out of the feed-dish, and did nothing else."

"But do not others have better success?"

"Some claim that they do; but it was said that, if we thinned the honey, it would be more like the nectar which comes in from the fields, and thus we would secure good results. I tried this, and have made many experiments along this feeding-back line, many times and in many ways, but generally with no real success, unless it may be called a success to have such sections as are nearly completed, those lacking just a little of being full enough for market, finished up for market. In this case I think it pays, even if we have to feed three or four times the amount we get back of what we feed; for, did we not do this, these nearly filled sections would have to be carried over to the next season, and this makes considerable work."

"How do you account for having so much

more taken out of the feeder than what was finally stored in the completed sections?"

"In all of my feeding operations I have ascertained this fact: Bees, fed in excess of what they consume in feeding the brood, become idle, simply living out of the feeder, not getting an ounce from the fields, while those not fed will nearly or quite secure a living from the fields. If fed when honey is plentiful in the fields, they will store no faster out of the feeder than others not fed will from the fields; while those storing from the fields will work in the sections with double the energy which those do that are being fed."

"Then you think that what I read was more from theory than from practice?"

"From all my past experience I must so conclude. But at the same time I am hoping that some way may yet be devised so that it may be a profitable thing to feed the bees extracted honey in such a way that it may be profitably turned into nice section honey."



#### SOME USEFUL HINTS.

The Daisy foundation-fastener may be kept from slipping on the floor, when working with it, by driving two wire nails into the part that rests on the floor. Let the nails protrude about  $\frac{3}{8}$  inch, and file sharp. Have one at or near each corner.

Sections fresh from the factory generally make up without breaking. Old and well-dried sections may be made to absorb enough moisture to make up without breakage by keeping them in a cellar for a number of days. Do not forget and leave them in the cellar long, or they will become moldy.

The weather has been very unfavorable for bees. It is reported to us that, during the first (rainy) week in June, queens ceased to lay, and that at the end of that week almost no unsealed brood could be found in many hives, although well supplied with old honey.

Try to have all old honey used up or worked over. It is not safe to depend on it for next winter's supply. I use a spiked roller to make holes through the cappings of old honey, then place combs so treated into empty hives located somewhat by themselves in the apiary. The honey is then removed by the bees in a short time, and the combs are ready to be used some way or other.

The honey-dearth in June and July caused many bees to suffer last season—so much so that much brood actually died of starvation. In some parts of New York the rumor was spread that the bees were affected with black brood. When the foul-brood inspector came he pronounced it a case of starvation. The disease (?) disappeared as soon as buckwheat yielded honey. The inspector visited the same yard this spring and found the bees all right.

Prof. A. J. Cook speaks at length in June 6th *Amer. Bee Journal* of the Dzierzon and the Dickel theories. Perhaps not many are better fitted to handle this subject and always apply the correct terms. I urge all who are interested to read the article carefully.

Naples, N. Y.

F. GREINER.

#### THE EX-LIGHTNING OPERATOR.

I see by GLEANINGS that you mention my sickness, so I will report. There were two months when I did not work to speak of, but am now able to nail frames and do other light work part of each day. The doctor says I will never be able to do any more hard work, but that, with care, I may be able to do light work. So please put an "ex" before the "lightning operator" in the future.

HARRY S. HOWE.

Artemisa, Cuba, May 25.

[The moral seems to be that it doesn't pay to work so hard; i. e., it is better *never* to be a "lightning operator" than to be afterwards an ex-lightning operator.—Ed.]

#### KEEPING OVER EXTRA QUEENS.

Is there any plan by which I can keep over extra queens from one season until the next spring—that is, keep two or more queens in the same hive by caging or otherwise?

DR. M. FIELDS.

King Creek, Ky., June 7.

[There is no plan that I know of which I would consider reliable. The only way is to keep queens over in nuclei, and winter the nuclei in a good cellar. That is what we did last season.—Ed.]

#### HIVE-COVERS, BOTTOMS, ETC.

After reading the July 15th issue I indorse Somerford's idea as to the flat top being best hive-cover, and believe the tile bottom a good thing for permanent apiaries. Here I shall hereafter make bottoms of red cedar, as it is cheap, \$1.00 a hundred for No. 3, and never rots out like pine.

A good honey-flow has come to an end by dry weather.

CHIP HENDERSON.

Murfreesboro, Tenn., July 5.

#### FEEDING BEET SUGAR.

Out of twelve good swarms I now have only four left. I think one thing that killed them was feeding them beet sugar last fall. The queen you sent me last year as a premium with GLEANINGS was one of your red-clover stock. Her bees were more than a third longer than the rest that I had, and she built up a good colony; but I gave them some beet sugar, and that used them up. A. J. TRUAX.

Leonidas, Mich., May 20.

[I don't think beet sugar killed them. See article by W. K. Morrison, next issue.—Ed.]

#### A HANDY HIVE-TOOL.

I inclose an exact pattern of one of the most handy tools a man or woman ever handled when opening hives and manipulating brood-frames. With the beveled side toward



you, press the lifter down between the brood-frames and press the chisel end down. This pushes the hook point under the lower edge of the frame, and at the same time lifts the frame up, when you take hold of the frame with the left hand; then move the lifter to the opposite end to your right, and raise the frame, which will not slip off. You can carry the frame any place you desire, or you can turn the frame in any position, look for queen, eggs, or brood, without any fear of dropping the frame; and, besides, I will guarantee that no one will ever get rheumatism in his thumbs or fingers when using the lifter, no difference how many frames are lifted, as one often does when having to lift frames with thumb and fingers. Again, no difference how tight a frame is stuck down with propolis, the lifter will just raise it without molesting a bee, besides lifting the frames. If there are any clumps of



propolis on the frame, just turn the lifter end for end, bevel side up; press the end of the frame against something solid, holding the frame with the left hand, and with the right you can shave all propolis off. Catch the frame with the lifter, and replace it in the hive.

Reinersville, Ohio.

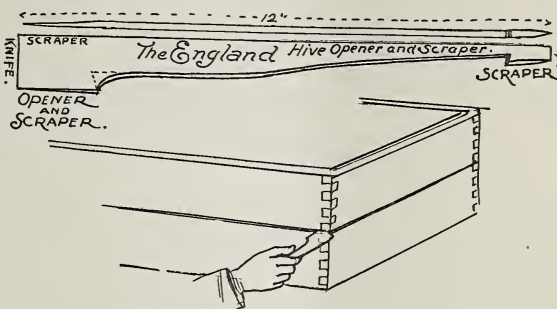
J. A. GOLDEN.

[In the design and style of a hive-tool, much depends on the kind of hive and kind of frame one is using, as well as his special method of working. If he has a great deal of propolis in his locality, rendering it necessary to scrape the top-bars as well as the rabbets and other inaccessible places in the hive, a tool like the one described by C. F. England would be better. See description just following.—ED.]

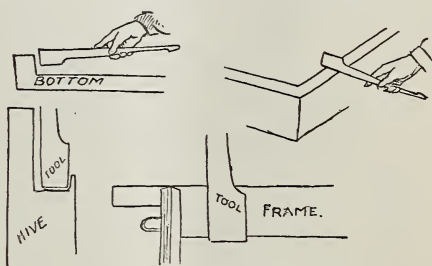
#### AN AUSTRALIAN HIVE TOOL.

Here is a sketch of a really good hive-tool I have made. Subscribers to GLEANINGS are welcome to copy it. It is made of file steel, 1 inch wide,  $\frac{3}{16}$  thick, drawn out as in sketch. The broad end will open hives, clean bits of comb off the frames, clean bottom-boards, cut bits of comb off the inside of hive-bodies, and perhaps be handy to kill a cross bee now and then. The wide edge is made nearly sharp enough to cut. The sides of the tool for one inch from each end are left square, as they clean the side pieces of the bottom-boards and tin rabbets better. The small end is just right to clean the inside of the tin rabbets, or to use for a screwdriver, etc., and the hook above is just perfect to lift the end of a division-board or frame. It is cut just a little under to form a slight hook, as it is then less liable to slip. The small end is also used to

separate Hoffman frames, by pushing in 2 inches, and giving a twist. You will see the steel is left  $\frac{3}{16}$  thick as far as the hook, and is



ENGLAND'S HIVE TOOL.



MANNER OF USE.

then gradually tapered. Perhaps  $\frac{1}{8}$ -in. steel would be heavy enough.

CHARLES F. ENGLAND.

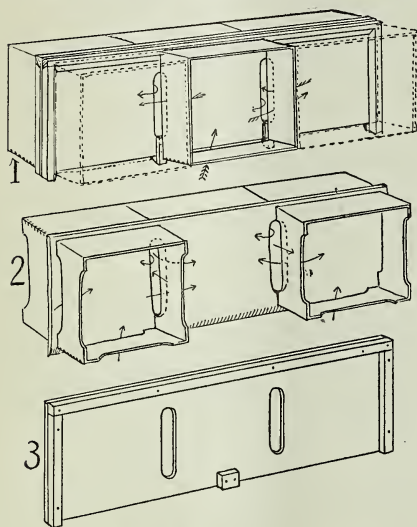
Foxton, Australia.

[This tool, in its general design, is one of the very best I have yet seen. Any hive-tool, to be really serviceable, should be of such construction as to be a pry, screwdriver, hook, and scraper, all combined. Mr. England has come very near giving us that kind of tool—perhaps nearer than any one else. If we could be satisfied that this implement would equal the best yet devised we would have them made by the quantity, and all of them drop-forgings. One of malleable iron might do for a cheap article; but something really serviceable should be tool steel.—ED.]

#### HARRISON'S SEPARATORS FOR PLAIN AND SLOTTED SECTIONS.

I send you by this mail a sample of the separators I have been using for the past three years in the production of comb honey—separators which I find to be quite an advantage in several ways. I think I get more honey per colony; whiter; sections better and more uniformly filled; while any thing that can be said of the fence will apply to No. 1, which I use with plain sections. No. 2 I use with common beeway sections, open on three sides. As I do not tier up, I have closed tops. No. 3 simply gives a beeway in connection with No. 1, at end or side of super to suit the user, as per style and size of super, one at the

side, or end, using a plain follower at the spring side. I use the same follower with No. 1, which I use with plain sections. You will see that the openings in the separators are at a point where the sections meet, giving free passage each and every way through the super, also giving the cappers a chance to close up their bees in fine and uniform style, and giving them a chance to recede and get out of the



No. 1.—Plain sections.  
No. 2.—Grooved sections, top closed, 3 sides open.  
No. 3.—Follower.  
Arrows show beeways.

way while changing sections. I do the work of taking out full and replacing empty sections at same time, taking out none but well-filled ones. I work only for comb honey.

Last season was an off one, yet I averaged over 65 well-filled sections per colony, most of which would class as "fancy white." I call my separator the "Harrison" for want of a better name.

GEO. W. HARRISON.

Susanville, Cal., Mar. 3.

[The peculiarity of your mode of using sections is that they can not be tiered up—that is, I judge your honey-flow must be of such a nature that you require only one tier of sections at a time; but in most places in California the practice is to use two tiers of sections—sometimes three and four, and it is certainly a great advantage to do so, or at least I so considered it in the localities I visited. However, you can get very nice honey, beautifully well filled, on the plan you describe. With the exception that the openings through the top are closed, your method is the same as that which has been used in England, for a good many years in connection with slotted separators. It is also practically the same, with the exception of the open top, as that used by L. A. Aspinwall, and by Louis Scholl and H. H. Hyde, mentioned in this issue. All things considered, I think you will find it an advantage to practice tiering up.—ED.]

#### WHY THE QUEEN WOULD NOT STAY IN THE HIVE.

June 27th I introduced a clipped queen in a hive of bees. On the 28th, about 4 o'clock, she came out of the hive with quite a number of bees gathered around her on the grass. I put her back into the hive. The next day, at about the same hour, she came out again with bees around her as before. I put her back again. The next day, 30th, she did the same as before, and so on for four or five days. July 4th she came out twice. I caged her and introduced another queen. The bees seemed to be very uneasy until I introduced the second queen, but are all right now. Before I introduced the second queen I opened the hive, taking out the frames, some of which were two-thirds filled with comb with considerable honey, but could not find an egg. What do you think was the trouble? L. C. UPP.

Mt. Pulaski, Ill., July 6.

[Friend U., you do not tell us where you got the queen that behaved so queerly. Unless you know she had been laying in some other hive I should say she had never been fertilized. Then the question arises, "Who was so foolish as to clip a queen without knowing that she was a laying queen?" Unless you tell us what you know about her before this queer behavior, we should hardly want to conjecture a reason. I have, however, known laying queens, when introduced into a new hive, go out in the manner you mention, as if they were displeased about something; but I never knew one to hold out so long in the way you describe. I should say she was not worth bothering with any way, and you did the proper thing in giving the bees another queen.—A. I. R.]

#### HIVING SWARMS IN ROOMY HIVES.

Say to Chris. Kinsel, p. 556, if he will use two hives instead of one in hiving his large swarms he won't be troubled by their leaving the hive. The upper hive should contain the frames, and the lower hive should be empty. Shade the hive well, and the third day take away the bottom hive and lower the top hive on to the bottom-board.

WM. CRAIG.

Luce, Mich., July 8.

[Very likely, friend C., more room inside of the hive, especially during exceedingly warm weather, would have a tendency to prevent the bees from leaving. Of course the hive should be in the shade if the sun is shining very warmly.—A. I. R.]

*B. M. H., N. C.*—If your bees have plenty of honey in the hive, don't bother about feeding them now. In fact, feeding should not be resorted to at all unless there is a liability of the bees becoming short during the coming winter. In your locality the bees should have, along about November, at least 25 lbs. of sealed stores, or what would be the equivalent of six frames, Langstroth size, or honey partly capped over.





#### NATIONAL BEE-KEEPERS' ASSOCIATION.

**OBJECT:**—To promote and protect the interests of its members; to prevent the adulteration of honey.

**OFFICERS:**—E. R. Root, President, Medina, O.; R. C. Aikin, Vice-president, Loveland, Col.; Dr. A. B. Mason, Secretary, 3512 Monroe St., Sta. B, Toledo, O.; Eugene Secor, General Manager, Forest City, Iowa.

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**FEES:**—Annual membership fee, \$1.00. Remittances may be sent here or to General Manager as above.

OUR subscription-list is increasing more rapidly than we have ever known it to before. For this we are grateful.

WE are compelled to give eight extra pages again, as we have so much good matter on hand that has been awaiting insertion.

I SUCCEEDED in catching Rambler on a genuine ramble. He was on the bicycle; and, although he has passed his threescore years, he has acquired the regular bicycle hump. I will show you the picture later.

I HAVE been told that the very excellent anti-adulteration law that was recently enacted in California is now being made a dead letter. The same informant says that a large corporation owns the glucose interests in that State, and is seeing that its interests are not hampered by this recent piece of legislation. I hope this is a mistake.

UNTIL one makes an extended tour of the South and West he can form no adequate comprehension of the immensity of the bee-keeping industry in those sections, nor of the big scale with which the Westerner, including bee-keepers, does things. I kept my kodaks snapping right and left; and if the negatives are good I'll give you more peeps at some of the things I saw.

THE black locusts, in California, in some localities, seem to kill the bees when these trees are in bloom; at least in the vicinity of Hanford I was told there would be hundreds and thousands of dead bees found under them. But in other localities, as, for example, in Colorado, the same trees were considered one of the important sources of honey; and, what was peculiar, they had no bad effect on the bees that gathered the nectar.

SOME little time ago I promised to tell about the bee-keepers' paradises in Texas. I have this on the docket, and it will appear as I take up the line of my travels. But since running across that paradise I have run into two or three others. There is one west of the Rockies, in Colorado, that is not yet over-

stocked with bees or bee-keepers; another one in Central Idaho—in fact, I do not know but the whole State. These will be described in turn. The fact is, millions of capital are being invested in irrigation; irrigation means alfalfa; alfalfa means a paradise for bees; but I found all along my trip that alfalfa-growing preceded bee-keeping by two or three years, for it seems to take about that length of time before bee-keepers find these gold-mines that have been hitherto unoccupied.

MR. H. W. COLLINGTON, editor of the *Rural New-Yorker*, will be one of the speakers to represent bee-keepers at the joint session of the bee and fruit men, at Buffalo. This session will be made up of the members of the American Pomological Society and of the members of the National Bee-keepers' Association. The *Rural New-Yorker*, according to A. I. Root, is one of the best agricultural papers published. It is practical and up-to-date, and Mr. Collington, its editor, a pleasing speaker, has been an open friend of the bee-keeper. He manifested much interest, as it will be remembered, in the Utter v. Utter case, urging that it be carried up to the higher court for appeal, which was done.

#### A LIST OF THE GREAT HONEY-PLANTS WITH LONG COROLLA-TUBES.

IN addition to the great honey-plants, red clover, buffalo clover, and horsemint, of Texas, that have long corolla-tubes, I can now add to the list the mountain sages of California, especially the white sage. This last has quite deep corolla-tubes; and I was told, while on the coast, that unless these corolla-tubes are very full the bees do not get much honey from this source. This is exactly the case with red clover. So it appears that long-tongued bees, if good in the North, will be in great demand all through the South, throughout Central and Southern California, as well as throughout all those States that grow red clover; and I have been surprised to find so much of it in the West. It appears, then, that, if long-tongued bees are an advantage on red clover, they will be equally advantageous in the case of all the other honey-plants I have named.

#### GENERAL IMPRESSION OF THE IRRIGATED REGIONS OF THE GREAT WEST.

I ARRIVED home from my trip, of some 6000 miles in the cars and 500 miles in a buggy, on Tuesday, the 16th, just after our last issue went to press. The whole trip seems like a dream to me now—a beautiful dream of paradises for the bee-men and ranchers whom I visited. I did not take in all the best bee country of the great West, but I went through some of the very best of it.

Some things that I could not have believed, had they been told me, I now credit because I saw them. When they told me, for example, that fence-posts planted in the ground would grow into trees in those irrigated sections, I did not believe it; but when I saw some posts that were sprouting—that is, leafing out, and

when I saw trees 20 inches in diameter, once fence-posts, that were said to be only 10 years old, with a barbed wire running right through the center of them, around the big fields, then I began to think there must be something in the fence post canard. Again, when I was in Arizona and saw hens and chickens that had been hatched on pantry shelves under the influence of the climate alone, I was pretty nearly prepared to believe any thing they told me.

But speaking about hot climates, I have been where it was up to 120, and ranged from that down to 110 on the irrigated lands; but I did not feel the heat nearly as much in those places as I do here at 90. The reason is the excessive amount of humidity in the East compared with the West. A high temperature with high humidity is killing, especially when there are hot nights. A high temperature with low humidity is quite endurable—indeed, it is quite pleasant. A high humidity with low temperature is chilling and killing, as those of us in the East know.

But the great West does not have all that is nice and pleasant. I missed the ever present shade-tree in the open fields, of which we have so many here. I missed the large areas of woods, or hard-wood forests, some might call them. In much of the West, trees grow only along irrigation-ditches. One can leave some Western towns, beautifully shaded, and in an hour's drive get out into the desert where, if he should lose himself, he would die from want of water or food of any kind unless he could knock down a jack-rabbit. And then the great West, at least many portions of it, has hot winds and sandstorms; and the tenderfoot who has been through one of these, almost concludes he will put up with a foot of Eastern mud in the road; damp and chilly weather; rains, floods, hail, snow, sleet, zero weather, and every thing else, rather than go through another sandstorm; and the worst of it is, these sandstorms have a way of filling the houses full of dirt and grit. One can not screen it out, nor shut it out with the windows. He has to live and endure it. If there is a person who has ever eaten a "peck of dirt" in this world it is the one who lives out west in localities subject to sandstorms. I ardently hoped for a genuine sandstorm, and my wish was gratified the very next day. My face smarted from the sharp blasts of cutting sand. It poured down my back; it filled my ears, went all through my clothing, into my shoes; and see? One might just as well shut his eyes, plug up his nose, ears, and mouth, occasionally catching a breath of air through the dust and grit.

There is another thing I did not like in the great West in some places; and that is, a sort of weed known as foxtail. These peculiar spears will rub off on one's clothing, come clear through, and then turn around and come out backward. I have been for weeks picking the ugly things out of my clothes. They are about  $\frac{3}{4}$  inch long, and bearded in such a way that they slide easily one way but not the other.

While the nights in most portions of the West are cool and delightful in spite of the

noonday heat, I was most disagreeably reminded of the presence of fleas and mosquitoes; and occasionally some other nocturnals that neither fly nor hop.

But with all the disagreeable features that I have described, if I were a young man, and desired to seek an occupation outdoors, I would take Horace Greeley's advice and "go west," for there is plenty of room in the irrigated regions, and the most of the time a delightfully pure air; little or no rain; and, where when the ground gets too dry, one can irrigate. Many and many a place that I saw, once a barren desert, is now, thanks to the mountain snows and irrigation, a veritable garden of Eden. The luxuriant vegetation and fruits of the tropics make one feel that these beautiful ranches could never have been any thing but beautiful and fruitful.

#### THE HONEY SEASON FOR 1901; HOW WILL PRICES RULE?

BEFORE going into detail I would say that the reports show that there were fewer bees that produced honey this year than the year before. In fact, the number has been dropping down from year to year, owing to the poor seasons that have prevailed in so many of the good honey localities. This is particularly so in Southern California, where probably three-fourths of the bees have died through neglect or starvation, just because the owners could not afford to keep on feeding them from year to year—at least they thought so.

In a general way we may say that white clover yielded better this year in the States where it grows than it has done for several seasons past; but the trouble was, there were not the bees to gather the nectar that there have been in years when clover was in abundance; so that, notwithstanding there has been a fairly good clover yield in the northern and central States, the actual amount of clover honey is not as great as it ordinarily is. It also appears from the reports that there is less basswood honey than a year ago. There will be less alfalfa honey from the western States, and so, as a natural result, the tendency of the market in the East, so far as the fine grades of honey go, should be as high as last year rather than lower; and I should not be surprised to see it advance.\*

While Southern California has had a good year for honey, there have been so few bees to gather it that the amount of California sage that will be offered in the eastern centers will be comparatively light. Buyers in California have been trying to scatter broadcast the impression that there was a tremendous crop of sage honey, and that, therefore, prices would rule low. But that is a great mistake. Prices should be the same as last year, and will be, if I am not very much mistaken. The large producers, rather than sell at a low figure, will

\*There has been, up until now, a general impression that this would be a big honey year, and, as a natural result, the market on extracted has been temporarily weak; but we are expecting it to stiffen up very soon now. Comb honey has not been put on the market yet to any extent, and it ought to start off at good prices.



hold their crop till next season; and I know of at least five or six carloads that will be held absolutely rather than sell at a low price.

In Colorado the crop of alfalfa honey, east of the Rockies, will be from one-half to two-thirds as heavy as it was a year ago, while west of the Rockies the season will probably be as good. Last year there was considerable alfalfa honey offered in the eastern markets, and there will be this year, but not so much, probably.

Two or three weeks ago our people were prepared to believe that prices would be lower for honey this year than last; but a careful analysis of all the reports seems to indicate that prices, instead of being from a cent to two cents lower than last season, should and probably will seek the level of 1900, for the simple reason that the entire honey crop of the country, probably, is no larger than it was a year ago.

But, aside from the report, we find that no more honey has been offered us than last season at this time—a fact that seems to prove the statements given by the reports. It may not be generally known, but the Root Co., perhaps, buys more *small lots* of honey than any other concern in the United States, and, as a general rule, we can get some idea of the amount of honey produced by the number of offerings, and the price asked for the honey. Every thing considered, then, it appears to us, from a careful survey of the whole field, that prices should rule the same as last year. If they should take a decided slump it will be because the big buyers succeed in conveying the notion that there has been a large crop, in order to get the honey at low prices, and then when prices stiffen *they* and not the producers will get the advance. Bee-keepers should, therefore, take it on themselves to inform each other.

Let me give one interesting fact in this connection. The Root Co. finds it can buy honey, from those who do not read bee-journals, at a lower figure than from those who take one or more and keep track of the market. It is not our rule to set prices. We ask for a sample and the prices asked; and it is a fact that *the fellow who thinks he can not afford to take a bee-journal will sell his honey enough lower in one season to pay for all the bee-journals for ten years.*

A careful analysis of the season in the principal honey States below, will, perhaps, give one a better idea of the actual situation.

From Michigan it appears from something like 30 reports, covering the entire State, that the season is not as good as that of last year. It will be remembered that, in 1900, our sister State produced a pretty fair yield of honey; and all the clover honey the Root Co. could buy came from Michigan. With very few exceptions the reporters for that State assert that the season is poorer than last year; and yet it has produced some honey this season.

New York, on the other hand, that has been having a series of poor seasons, comes up with a smiling face. The clover crop in that State has been universally good; and the York Staters, if their bees have not largely

died on account of black and foul brood during the several poor years, will, if they are not in too much haste, find a good market.

Pennsylvania does not make a good showing. While it is true that some honey has been produced, it appears that the season has been even poorer than last year, and that was about as poor as it could be.

Some bee-keepers in Illinois have had an absolute failure, while others have apparently obtained some honey, and the same may be said of Iowa.

Kansas, Nebraska, and Missouri, as well as Arkansas, have, as every one knows, suffered from a terrible drouth; and the reports in those States indicate little or no honey.

Wisconsin, a State that usually shows up well with basswood, if it does not with clover, does not seem to have been blessed with a good season; while its sister, Minnesota, seems to have had generally a good yield.

Some parts of Texas, usually one of the best bee States in the Union, have had a poorer year than last. But Texas never seems to have a complete failure; for, so far as I could learn while in that State, the bee-keepers always make a living, and generally a good one.

Utah, going to the extreme west again, has had a rather flat failure. The bees died off very badly in the spring. At the time I was there, the prospects were not encouraging.

Virginia and West Virginia, have not had a very favorable season.

Only two or three reports have come from Vermont, but they pronounce the season better than last year.

I have tried to give the situation fairly and impartially, and I believe I have stated the facts not far from the real truth.



#### GERMAN WAX-PRESS.

In another column we show the new wax-press we are putting on the market. The introduction price is \$10.00. We are likely to catalog it at a higher price than this, and are offering it for only a short time at this rate. So far as tried, it seems to fill the bill.

#### HONEY, COMB AND EXTRACTED.

We are again in the market for both comb and extracted honey. We are having a brisk demand already for a choice article, and shall be pleased to hear from those having any for sale, with a sample of extracted. Write us how much you have, how it is put up for shipment. We prefer extracted in 60-lb. cans. In offering comb honey, tell us how it is packed, how much you have of each grade, and what you ask for it. We have a lot of unfilled orders waiting for stock to arrive.

#### NO. 25 JARS AND MASON JARS.

Of the carload of jars received about a month ago we have already sold all of the pint size, both flint and green, and almost all of the 60 gross of No. 25 jars. We have ordered another car, consisting of 100 gross No. 25 jars, and more pint Masons. We hope to have these here by Sept. 1. In the meantime we still have a good supply of quart and two-quart Mason jars, which we will sell, while they last, at prices last quoted. The supply of quart jars is not so large as of the two-quart, and may not last very long. Send on your orders while the supply lasts. They can not be replaced at these prices.



If thou turn away thy foot from the sabbath, from doing thy pleasure on my holy day; and call the sabbath a delight, the holy of the Lord, honorable; and shalt honor him, not doing thine own ways, nor finding thine own pleasure, nor speaking thine own words, then shalt thou delight thyself in the Lord; and I will cause thee to ride upon the high places of the earth, and feed thee with the heritage of Jacob thy father; for the mouth of the Lord hath spoken it.—ISA. 58:13, 14.

Create in me a clean heart, O God, and renew a right spirit within me. Cast me not away from thy presence, and take not thy Holy Spirit from me. Restore unto me the joy of thy salvation, and uphold me with thy free Spirit. Then will I teach transgressors thy ways, and sinners shall be converted unto thee.—PSALM 51:10–13.

I was up in the Traverse region, on the very summit of one of the high hills. My boarding-place was about a mile and a half from my little ranch in the woods, and each morning my wheel and I climbed this hill. It was just a little after sunrise. Cool breezes were coming from across the water; in fact, water was visible more or less in every direction. But before one gets to the water there are fertile fields, and homes of the tillers of the soil, scattered here and there in the valleys and on other hills. I was all alone. No human being was anywhere near, and there was nothing to hinder my speaking out loud as I thanked God (as I often do) for having given me a human life to live. Then I thanked him for my privileges, and almost unconsciously I began praying aloud for the different ones of my friends and acquaintances.

Some of the friends who read these pages may think it a singular thing that I enjoy talking out loud to the Maker of this universe. But the fact is, for many years I have greatly enjoyed this sort of communion, whenever I am sure no human being is near; and really is there any seclusion—that is, if we take it in the sense of freedom from interruption—like being on a hilltop when the hill is far away from all human beings? If I am correct, the Bible tells us of several cases where Jesus went up into a mountain to pray. There were several reasons that morning why I needed an opportunity for communion with God. You know what I said about that neighborhood, and being neighborly. Well, I had already got into an entanglement with a neighbor. I did not mind the few dollars involved, for I would have freely given the money to him; but I did not feel it would be right to let him think he succeeded by means that were not (as it seemed to me) fair and honorable. I prayed that God would give me grace to do just right in the matter.\* Then I prayed for the inmates (whom I knew) of the differ-

ent homes that were right in sight in different directions.

I went down the hill through the cool shade of the old lumber road, through the ravine, very happy. In a few hours more I was working pleasantly side by side with the man with whom I had trouble, and I did not let him have his own way either. The Holy Spirit seemed to be with me.

After several days of hard work on the ranch I decided to take a rest by visiting some of the summer resorts further north. Bay View, just one mile north of Petoskey, is a sort of Michigan Chautauqua. Here religious people and some of our great divines address the people in the auditorium, not only every day but *several times* a day. I reached there Friday evening. I rather wanted to spend Sunday at Bay View because of the religious instruction; but what should I do with Saturday? My eye soon caught on a little bulletin that read, "An excursion of 170 miles for only 50 cents, to Mackinac Island and return, July 22." This would hit me exactly right, but I wanted to start home Monday. During the evening we had a splendid address, illustrated by a magnificent stereopticon, in regard to a trip over the route, as nearly as can be made out, where the children of Israel wandered for forty years. After the talk was over I noticed some new bulletins swinging in the breeze under the electric lights. I stopped to read them. It was something like this:

"The steamer Fanny Hart will touch at Petoskey at 9 o'clock Saturday morning. She will give passengers two hours at Mackinac Island, six hours in the middle of the day at the Soo, returning Monday. Price only \$5.00, including board and lodging."

Now, this gave me Mackinac Island with the "Soo" thrown in. It was to start Saturday morning, and that would let me make my trip back home Monday morning. The only trouble was, it was, at least in some sense, a Sunday excursion, and you know how pronounced I have been all my life against such things. But there was to be a stop of six hours at the Soo. This would take in church time, and why couldn't I attend church there as well as anywhere else? I debated the matter more or less all night, and finally decided to take the trip, although I did not feel quite easy about it. We had a very pleasant trip on Saturday, and reached Mackinac Island just a little before sundown; but we could not look over the celebrated objects on the island as we had planned, on account of a thunder-storm. We reached the Soo rather late Sunday morning, on account of the great number of vessels passing to and fro through that wonderful canal, cut through Saint Mary's River; but for some reason, unknown to the passengers, the captain announced that the boat would leave the Soo at 10 o'clock A. M. sharp. This shut off all chance of attending religious services. I inquired if there were any Sunday-schools before church, but did not find any. I also inquired if there was a Y. M. C. A. building there. A policeman told me the city had been talking about it, but hadn't got around to it yet. So I wandered

\*I also prayed for that little Sunday-school where I talked to the young people the day before, nestled down in the valley, scarcely half a mile away. It seemed then an easy matter to pray for every thing and for everybody, for my enemies as well as for my friends; and there was a sort of feeling of confidence or faith given me that at least some of these prayers would be answered.



about with a conscience heavier and heavier every hour. Of course, I was interested in the wonderful sights of the great locks where boats toward 500 feet long are all the while awaiting their turn to be passed through. The passengers on board the boat were all very nice people. There was not any thing objectionable going on; but, at the same time, it was evident that none of the passengers were particularly spiritually minded. I found a very nice plain-print Bible on the piano, and I read in it a good part of the day. One young man admitted that he, like myself, was a church member, and that, although he was going to stay over till the next day, he did not propose to go to church while there were so many wonderful things to see and inquire about.

As we left the Soo, the mate informed us that, in consideration of the fact that we did not have a chance to go over Mackinac Island the day before, they would drop passengers—at least as many as wished—for four hours on the island while they went to unload some freight at Cheboygan. Here was a chance to attend the evening services; but the passengers were discussing the wonderful sights on the island—Arched Rock, Devil's Kitchen, Lover's Leap, beautiful cold-water springs, etc.

It was not church time when we landed, so I thought I would go with the rest and see some of these wonderful things, and get back in time for church service. Yes, it is true your old friend A. I. Root was not only off on a Sunday excursion, but he was out sight-seeing when he ought to have been getting ready to be promptly on hand with God's people, at the place of worship. As I passed along the beautiful macadamized roads between the water and the cliff I was somewhat nervous and excited. I imagined I heard Dr. Miller's voice saying, "Mr. Root, when you tell us of these wonderful sights you saw up here, you will, of course, remember to mention that it was on Sunday you 'took them in.'" Then I thought I heard the children discussing the matter, and it seemed to me I could hear Ernest laughing in his sly way (for he has always been more or less up to mischief), to think *father* was off sight-seeing on a *Sunday* excursion. These things troubled me so much that I passed by the Devil's Kitchen, and did not see it. A man I made inquiry of said he thought I certainly would have heard the running water from the springs right where you turn off and climb up among the cliffs. I turned and went back hastily. The evening was quite warm, and I was getting sweaty. I found the spring, and the water of it was certainly most refreshing. I saw the wooden steps that led up to the kitchen; but at first I said, "No, I am going straight back to church, even if I have come hundreds of miles to visit Mackinac Island, and stand just on the threshold of the 'kitchen.'" Then somebody or something suggested that I take just "one look" inside. I think it must have been the same person who suggested to mother Eve that she simply take "one bite" of that beautiful apple.

I climbed up the wooden stairs, but the kitchen was evidently further up. I followed a steep footpath; but the foliage was so dense, and it was so near night, I could not see very well. The pathway became more intricate and dark. Finally I emerged into an open grassy plot. I thought the kitchen must be down at my right, and I hurriedly pushed on that way, and then decided it must be at the left. Then I gave it up and tried to go back the way I came. But I could not find the opening where I came through the thicket. I tried quite a spell, and then meditated pushing down over the cliffs, without any path. But I only tore my clothes, got into a tangle, and got more sweaty, and I hadn't found any kitchen at all; but I mentally decided I was in the Devil's "*trap*" in good earnest, even if not in his "kitchen." A guilty conscience was making me more and more nervous and excited. Finally I slid down along a water-pipe I had noticed in climbing up. I had come further from the town than I supposed. I thought if I only succeeded in getting to church just before the services closed, or could get near the church doors among Christian people, I should feel better; but after visiting two different places of worship I only succeeded in going home with the crowd from one of them.

Just a week before, at that little Sunday-school over among the hills I gave the young people a talk about holding fast to their spirituality, or, if you choose, to the influences of the Holy Spirit. I told them a clear conscience and a sense of God's presence is worth more in life than any thing money can buy. With it they would be happy anywhere under almost all circumstances; and without it they could not be happy, even with all that wealth could furnish. Then I spoke to them about grieving away the Holy Spirit by doing things that their conscience told them were wrong; and yet after all this talk, within one week I *myself* had driven away all happiness just by chasing after the things of this world.

The steamer left us a little after five. The four hours would take us till something after nine; so we went out on the dock and waited for the steamer to show up. It was ten o'clock, and she had not come; eleven, and she had not come; midnight, no steamer. A little after one o'clock the electric lights from the upper bow could be seen away off across the waves. About half-past one we were on board. Besides the half-dozen passengers who decided to stop on the island, there were the dining-room girls who waited on the table. There in the night we had quite a chance to become acquainted; and had the circumstances been any different I might have exhorted those girls to lead Christian lives; but with what consistency could I then hold up Christ Jesus to them? Under other circumstances I might have done so; but I felt, for the present, myself ruled out. I passed them several times on the island, and they recognized me. *They* knew that I was of the world and among the worldly crowd and not with the church-goers.

Years ago I told you about riding twenty miles after dark over sandy roads rather than

even take a wheel-ride early Sunday morning. I said then that I tried not to do any thing that would make me feel ashamed to tell people my name and where I lived. Saturday night after dark, I was not ashamed nor feared recognition; but on Sunday morning, even if only a little after daylight, I would a little rather not be seen by any one who knew me. I said then, "Since I have become a Christian I can always and everywhere say to everybody I meet, 'I am A. I. Root, of Medina, Ohio. Who are you?'" But on this Sunday I do not think I told anybody my name. Several asked me, "Where do you come from?" I replied, "Ohio." In response to a further question I said, "Medina, Ohio, near Cleveland;" but I did not tell anybody I was A. I. Root. It was the first time in many, many years when I felt at all backward in giving my name and full address.

Many of you, perhaps, will remember that Sunday evening, July 21, was during one of our hot periods—at least so I have been told by the papers. Perhaps I might add my testimony in regard to the cooling winds of that northern region. The wind blew right across the water that night.\* I had forethought enough to take my overcoat when I left the boat; but even with that overcoat, after midnight I became chilled to the very bone. When I got into my neat pretty little stateroom I thought I should get warm with the abundance of woolen blankets provided; but I did not get really warm before daylight, and I was used up physically as well as spiritually for the new week that opened before me. Years ago we had here in these Home Papers a little verse which read:

A sabbath well spent brings a week of content,  
And strength for the work of the morrow;  
But a sabbath profaned, whatever is gained,  
Is a sure forerunner of sorrow.

Now, why should I tell all this? For one thing, it illustrates how easily one is led out of the straight and narrow path. Christian, in the Pilgrim's Progress, tells of getting over into another road that he felt sure was not the right one; but his companion declared it was all right. Pretty soon they met a man, and asked him about it, and he declared very positively they need not worry a bit, for it was *the* road. But by and by all three got deeper and deeper into trouble. I know there are many among our readers who will think I make a big fuss about a very little thing. They will say, "Why, the best church-member in the world does not expect to go to church *every* Sunday; and, besides, when peo-

ple are out on a vacation, or an outing, very few attend church *at all*. Even the ministers do not have any Sunday at such times. They are taking a *rest*." Well, you can have it that way if you like; but I do not want any such "rest."

Well, suppose you *have* followed after worldly things and worldly people, and made a mistake. What shall you do? Wait till the guilty feeling wears off? or perhaps, as the children might say, shall we wait till God forgets about it? God forbid. Such an experience fits us to appreciate the wonderful thought in the second of my texts. Again and again have I wondered that human language can so well express what a sinner feels. "Create in me a clean heart, O God." Any penitent sinner, under *all* circumstances in life (or even in death), could use this prayer; and the latter part of it, "renew a right spirit within me," is fully equal to the first. David recognized that his heart was not right. He was not what he ought to have been. But God himself is equal to the task of taking the wrong feelings and putting back the right ones. And then, again, we have the expression, "Cast me not away from thy presence." Those who have been in the habit of living near the Holy Spirit can realize what a punishment it is to be cast away because of sin. There is only one remedy; and David seems to comprehend it when he says, "*Restore* unto me the joy of thy salvation." And after God has thus given a new heart and a new spirit, and restored the lost joys, *then* may we point out to sinners the straight and narrow path. How grandly that point comes in, "Then will I teach transgressors thy ways, and sinners shall be converted unto thee." In my talk with the girls in the little crowd that was there waiting for that steamer I urged (as well as I could under the circumstances) pure and upright lives; but how could I exhort any thing in the line of either of my texts after the way they had *seen* me spend the Sabbath; and since that experience I value, as I never did before, having a life and *character* back of me so that I can consistently plead with people in the way suggested in the text, "*then* will I teach transgressors thy ways; and sinners shall be converted unto thee."



#### THE SUMMER RESORTS OF NORTHERN MICHIGAN.

Nearly a year ago I told you considerable about the beautiful resorts in the region of Grand Traverse Bay; but now I wish to speak of some of the celebrated places a little north of Traverse City, especially of the region round about Charlevoix and Petoskey. Charlevoix is situated just between Lake Michigan and Pine Lake. It is often called Charlevoix-

\*In regard to the cooling winds, at one point on our trip on the steamer a lady at my elbow remarked, "Why, what a funny country this is! One time the wind blows hot, and sometimes cold." Sure enough. A hot breeze would come from off the land, that would make one feel almost faint; and, immediately after, a breeze from a slightly different direction from off across the water would brace one up with a delicious coolness that was really enjoyable. Sometimes when there does not seem to be any breeze at all from off the water an excursion is planned to some point where they can easily, at a slight expense, get the cool breeze, either on the boat or on some point of land that extends out into the water. The Traverse peninsula, where my ranch is situated, is one of these latter points.



the-Beautiful, and was named after F. X. Charlevoix, an early missionary there, from France. The Indians seemed to have recognized it as a beautiful spot before the white men ever had a glimpse of it. The station on the Pere Marquette Railway is itself a spot of wonderful beauty. Between the station and Pine Lake there is a fine lawn interspersed with flowers; and just back of the station is the Charlevoix Inn. You go up a broad flight of stone steps that look as if they might be made of marble; and just before you is a fountain that drops its waters into a large stone basin of this same white marble-like stone, with beautiful speckled trout so tame one can almost touch them, making it seem like a fairy land. All about the place are beautiful residences of the summer resorters as well as magnificent hotels. Electric lights are seen everywhere along the shores of Little Traverse Bay. The current is mostly furnished, I believe, by streams of great coolness and crystal purity that come from springs at the base of the hills. In fact, all along the northern part of the shores of Lake Michigan there is almost unlimited water power, and the water is so clear and pure that the waters along the pebbly beach of Little Traverse Bay look like clear spring water rather than lake water. The water is so clear in Little Traverse Bay that in many places you can see objects plainly at a depth of thirty or forty feet.

Charlevoix is only 16 miles from Petoskey, which is situated just within Little Traverse Bay. Here we have quite a large city on the side of the hill fronting the bay. Beautiful hotels with spacious grounds in front, and princely summer residences, are all along the bay. No matter how hot the weather, cool breezes are almost constantly coming from over the water from the north or northwest. During one of the hottest July days I took a trip off over the hills about seven miles, in the vicinity of Bear Lake, to hunt up a bee-keeper. Well, over among these hills the July weather seemed very much like that in Ohio and Southern Michigan away from the great bodies of water. It was really unpleasantly sultry. When I got back to the shores of the bay and the great lake, it seemed like a different climate.

One mile north of Petoskey is Bay View, a place that has been celebrated for years past as the special resort of literary people. The university has a faculty of 42 instructors from the leading colleges; and then it has what is called the "Bay View Reading Circle," enrolling thousands of members.

Although electric lights are everywhere in Bay View, Petoskey, and Charlevoix, they have not yet caught on, if I may use the expression, to electric railways. There is, however, a very pretty arrangement of steam-cars, made much like our best trolley cars, that make trips to the surrounding resorts at a very low rate. For instance, they run every half-hour at the very low rate of 25 cts. for an eight-mile trip and return. Beautiful little steam ferries make a similar price; and the tickets will carry you either by steam or rail, as you choose. Besides this, there is a beautiful bi-

cycle track constructed at considerable expense from Bay View to Roaring Brook, and of course I had to try my wheel on the beautiful track. I forgot to time myself, but it seemed to me I never rode so many miles before in so short a time. Roaring Brook is six miles from Bay View. A stream of wonderful clearness and purity comes tumbling down the hillside through thickets of cedar and other evergreens. Walks have been cut all along through the tangled thicket; and one can scarcely imagine finer places for a picnic dinner than there are all along here. The ground under our feet is carpeted with the most beautiful moss. The air is perfumed with evergreen cedars—I think the same kind that furnishes the wood for our lead-pencils. Drinking-places are everywhere; and I can add my testimony to the statement that the water bubbling from these springs is nearer ice water than any other spring waters in the world. I regret I did not carry along a thermometer. The statement is made that the gushing springs along the shore are only 12 or 15 degrees above the freezing-point all the year round.

After riding my wheel it seemed as if I could never drink enough of that water, and I really feared several times that so much cold water might interfere with my digestion, but it did not a bit. The crowds around me seemed to feel as I did. They drank and drank, and evidently decided in their own mind that there was no more delicious drink to be found on the face of the earth than this pure cold spring water. By the way, I do not remember seeing a saloon anywhere along those resorts. In fact, if one were to start a saloon I am inclined to think the surroundings would persuade people that the spring water is better, and more to be desired than any thing to be found in those dens of iniquity.

Now, I wish to give Harbor Springs a good write-up; but I am afraid I can not do it justice. I should call it a little island about a mile long and half a mile wide. *It would be* an island if there were not a little neck of land connecting it with the shore. But clear around this island are summer cottages. They are as close together as they can be placed—that is, and not be too much crowded against their neighbors. They are all around fronting the water, and close to it, like cottages along a suburban street. These cottages are all different. Each one has some peculiar piece of architecture and fancy painting. In front of each cottage, right out in the crystal water with its pebbly beach and bottom, there is a boat-house covered with canvas or light painted woodwork. Every resident owns a boat of some sort. As the sand is rather soft to walk in, wooden walks curve along with the irregularities of the shore, and narrow walks lead up to the doorway of each residence. Not only does Nature seem to have put on her holiday attire, but all the people—men, women, and children—are dressed in light summer garb. As I gazed in astonishment I fell to wondering if all the pretty women congregated at Harbor Springs, or was it their attractive and novel attire and the sur-

roundings that would have made any woman look lovely under similar circumstances? Perhaps they looked lovely because they were good people. "Handsome is that handsome does," you know.

Every little while the motor cars and the ferry-boats were loading and unloading their cargoes of people who were in summer attire enjoying their vacation. Of course, electric launches, costing all the way from a few hundred to a few thousand dollars, were flitting in and out everywhere. For 15 cents you can take short trips and back again; and those dainty launches, upholstered like a Pullman car, easily gathered a crowd of passengers almost everywhere they stopped.

I have told you before that I am in love with "babbling brooks." Well, Roaring Brook is a "babbling brook" indeed, and on a considerable scale, for there are waterfalls every few rods. Now, there are other resorts all along the northern part of the east shore of Lake Michigan. Perhaps, however, the center of all this work is more in and about Little Traverse Bay than anywhere else.

Some of you may say, "Oh, yes! that is all well enough for *rich* people." But, wait a little, my friend. I had this matter especially in view when I made the trip. The railroads are making exceedingly low rates all the while up to this vacation region, and return. While there are hotels that charge several dollars a day for board and lodging, there are great numbers of private residences advertising furnished rooms. You will see there little shingles hanging out from almost every cottage in some streets. At Traverse City I had a letter of introduction to Mr. Frank A. Risley (a college student), who is employed during his vacation by the American Sunday-school Union to look after the Sunday-schools of Northern Michigan. Well, he has his headquarters in Traverse City in one of the very pretty little cottages on West Seventh Street. While talking with him about his work, his salary, and his expenses, he gave me the following information: The little sleeping-room where he and I were talking cost him 75 cts. a week. He was at liberty to occupy the room every day and every night if he chose; but in his mission work he was, of course, absent a great deal of the time. Well, now, mind you, this nice pretty little room with dainty bed, washstand, towels, etc., cost him only 75 cents a week. Then at the same house he purchased 21 meal-tickets for \$2.50—only about 12 cts. a meal, you will notice. Now, he could use these meal-tickets just when he chose. He was going and coming every day. The room was, of course, to be paid for any way; but no meals, only when he was present. When I suggested that it must be rather plain fare for so small a price he invited me in to supper, and it was just as good a meal as I would ask for. In fact, I think I would enjoy better health with such fare, and, as a consequence, more happiness, than if I could be at a hotel where meals cost 50 cts. each, and a bed the same. I am told that similar prices can be obtained in almost all of these towns and cities. Of course, you will have to choose

a cottage somewhat away from the center of the town, where rents for that kind of property are low, to get these low rates.

At every stopping-place I easily found nice clean restaurants where a good meal could be had for from 15 to 25 cts. In this respect Northern Michigan is certainly away ahead of some other parts of our country. The people are also pleasant, civil, and accommodating. Their bread and butter largely depends on securing boarders and lodgers, and in treating them so well that they will want to come to the same place again next year; and hundreds and thousands of people are making trips regularly every summer to these northern resorts.

I have told you elsewhere something about my trip further north. Mackinac Island is much like Harbor Springs, but not quite as retired among the cedar-trees and thickets; but just about sundown you can perhaps see more women, girls, and children, in fantastic holiday attire, on the side hill on Mackinac Island than in any other spot on the face of the earth. It made me think of collections of gaudily painted butterflies we often see in entomological collections. You gaze at one, and think she is about the most attractive woman you ever saw. Then you look at another, and finally conclude she is rather ahead of her sister, although in a different way. Then a third eclipses both, and so on until you are utterly bewildered. Now, such scenes do not give me unalloyed pleasure. I often fall to wondering if these lovely women have the love of Christ Jesus in their hearts; and then I begin wondering, again, if such is the case how can they consistently spend so much money in dress and so much of their time in display? Now, I try not to be too critical in this direction, for I believe God intended that women—yes, and men too—should use quite a little time and money in making themselves look neat and well, in the eyes of their fellow-men. I have sometimes wondered just where the line should be drawn, especially when I pay ten cents to have my shoes nicely shined, and then have some adventure a few minutes later that takes the shine all off again.

The Soo canal is the most wonderful spot in Northern Michigan, in my opinion. While it has some of the attractive features I have been speaking about, the Soo and its surroundings remind us more of the great progress that has been made and is being made in transporting the merchandise of the world. All the way up through that canal cut in the solid rock of the St. Mary's River, we pass great boats laden to their utmost with iron and copper ore, wood pulp from the Canadian forests, and other articles of merchandise. I never knew before that there were hundreds of great steamers, made almost entirely of steel, pretty well toward a quarter of a mile long, engaged in this great traffic. These steamers, when laden, are mostly under water except the little turret that the pilot and the officers of the boat occupy. They call them whalebacks; and, in fact, the waves are expected to pass right over them without hindrance. These boats are going and coming at such a rate that the great double Soo canal



has all it can do, and sometimes more than it can do, to let them through without expensive delays. These canals are cut in the solid rock, right beside the celebrated Soo Rapids. This rapids is in the Saint Mary's River, that permits the waters of Lake Superior to pass down to Lake Huron. The rapids is, I should say, a river half a mile wide and perhaps a mile long where it splashes and foams over the rocks. The fall is about 20 feet. Each side of this mile in length, not only the walls of the canal but the pavement over the ponderous machinery are solid hewn stone, the peculiar white building stone I have mentioned, that looks so much like marble. The buildings containing the machinery for operating the locks are little houses made entirely of glass and stone. The power to move the ponderous gates all comes from water-motors driven by the enormous water power of the Soo canal. Just back of the city a new canal is being constructed 200 feet wide at the bottom, and 30 feet deep. This canal is sawed out of solid stone. The walls are cut down by appropriate machinery as true as the walls of a building. Railroad tracks run along the bottom, and cars carry out the broken rock. The work has been in progress for two years and a half, and it is estimated it will take two years more. This canal is to furnish water power, and the power-house is now partly finished, almost a quarter of a mile long, and is said to be the longest single building in the world. An electric-power plant is to be installed that will rival the great electric plant at Niagara Falls.

When I expressed surprise that there was enough shipping to keep two great canals constantly busy, one of the officers informed me that the old canal, built many years ago, was soon to be enlarged, because the capacity of the two was not sufficiently great for commerce.\* The material on which all daily papers are printed—yes, the very paper on which you read these words—probably comes from the Canadian forests through that great Soo canal. The officer mentioned told me the traffic in paper pulp was getting to be so great that a project was on foot to bring the pulp from Canada to the United States through an immense viaduct, something like the great tunnels that bring water for our large cities. This pulp was to be pumped through to paper-mills run by the great power-plant I have mentioned, and they expected to furnish paper enough, not only for all the newspapers, but for all the books to be made in the United States. When I asked how long the Canadian forests would hold out, my informant said that there were miles and miles of the spruce timber, and that there was raw material enough in Canada to supply the United States for at least a hundred years.

At the close of my visit to the great Northwest, I wish to mention once more my in-

\* Besides the two great canals with their ponderous locks, on the American side, I must not fail to mention that there is also a similar canal on the Canadian side; and these three together are not able to pass the great boats so as to prevent navigation at times from being blocked, and suffer delays that are enormously expensive.

debtedness to the officers and employees of the Pere Marquette Railroad. I suppose most of the friends know already that I am always making blunders, in traveling. I have fits of doing things absent-mindedly. On one occasion a baggage-master gave me a check for my bicycle. I suppose I must have taken it and put it in my pocket; but I was so sure I *didn't*, I looked another baggage-master squarely in the face and declared I never received any sort of check. They thought it very strange, and gave me another. Afterward, in *another* fit of absent-mindedness, I put both checks in my overcoat pocket, and when I wanted the wheel (at the Traverse City station) my overcoat was out at my ranch in the woods, ten miles away. I explained matters, and got my wheel without a check at all. Now, these Pere Marquette people *all* seem to be good-natured. I think they must take it for granted that, in carrying people off on an excursion, they must put up with a good deal, so the excursionists can have a good time and want to come again.

Just one thing more: During this hot dusty period I have always found plenty of clean water in even the common railway coaches; and not only that, two great big roller towels to every coach, that were *certainly* nice and clean every morning when they started out.

In the next issue I will tell you something about strawberries, peaches, and potatoes in the Traverse region—especially about ripe strawberries for the markets of Chicago after the middle of July.

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### Special Notices by A. I. Root.

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#### WHAT CAN WE SOW OR PLANT ON VACATED GROUND DURING AUGUST?

Well, August is the great month for turnips. The Purple-top White Globe seems to be the special favorite. A good many sow the seed the last of July; but if grown during hot weather they are apt to be too strong for table use. If you want real nice turnips for the table, sow them several times during August—yes, even up into September. They will not be real nice until they are out in a frost or two; and those sown so late that they do not get very large are best for table use. The White Egg is a good deal like the White Globe, but a good many think them more tender and sweet.

Of late there has been considerable said in the agricultural papers about sowing turnips on spare ground, to plow under as a fertilizer. Now, turnips are not worth as much as clover, by any means; but they are better than nothing at all, and for this purpose the long White Cowhorn is recommended. Its roots go away down and bring up fertility that the round turnips growing on top of the ground will probably miss. They will also stand a drouth better when they once get started.

We can furnish seed of the turnips mentioned above, at 5 cts. an ounce; 1 lb. 30; 5 lbs., \$1.25. If wanted by mail, add 9 cts. per lb. for postage and packing.

#### DWARF ESSEX RAPE.

This is something after the turnip family, or perhaps, rather, the cabbage family. It will stand more frost than either cabbage or turnip. It can be put in among corn at the last cultivating. I have seen it sown in this way so as to stand 3 feet high after the corn was cut and out of the way. It may be sown at any time from May to August. In my trip through Michigan I saw field after field of it, some of them ten acres or more in extent, and sheep and lambs were feeding off the crop during the last of July. Where the drouth was very severe this plant seemed to stand up bright and green.

Prices: 1 lb., postpaid, 20 cts.; 50 lbs., by freight or express, 7 cts.; 100 lbs., \$6.00.

## SEVEN-TOP TURNIP FOR HONEY OR TO PLOW UNDER.

I omitted mentioning in the proper place that the seven-top turnip is perhaps the best one to plow under for fertilizing the soil. It will also give a good crop of honey before it is turned under in the spring. If sown any time in August or the fore part of September it will get rooted so as to stand any winter. In fact, I never knew it to be thrown out by the frost here in Ohio when it gets a good start. It comes into bloom between apple-blossom and white clover. It may be plowed under for potatoes or any other crop. Price, ounce, 5 cts.; 1 lb., 20 cts.; 10 lbs. or more at 15 cts. If wanted by mail, add 10 cts. per lb. extra.

## CRIMSON OR SCARLET CLOVER, ETC.

With a fair amount of rain this will do all right on almost any good ground, sown during the fore part of August; but the earlier the better. For prices, etc., see our last issue.

In the Traverse region in Michigan, medium and mammoth clovers catch all right and stand the winter when put in during August. Some experiments have been made here in Ohio, but I can not find any thing very definite about it. But I have tried it on small patches where strawberries were turned under. I think that, with good ground and favorable circumstances, all the clovers will make a stand when sown in August.

## WINTER OR EGYPTIAN ONION-SETS.

We are just now gathering a fine crop of these. Quart, 10 cts.; peck, 50; bushel, \$1.50. If wanted by mail, add 10 cts. per quart for postage and packing. As we are getting a good many orders, if you want them at the above price you had better get in your order at once. Now is the time to plant them, and the sooner the better. They never fail to grow, and they will stay in the ground for years unless you dig them out. It takes a very smart weed to crowd the winter Egyptian at any season of the year; but, of course, they do very much better where the weeds are kept out, and clean cultivation given. Perhaps I might add, in conclusion, that, if the weather is not too hot and dry, almost all kinds of peas will give a nice crop for table use if put in during the fore part of August.

## SEED POTATOES FOR 1902.

The prospects are just now that potatoes for any purpose will be scarce and high. The Cleveland market quotes potatoes for table use at \$1.50 per barrel; seconds, from \$1.00 to \$1.25 per bushel. In our own market new potatoes are retailing at 40 cts. a peck, and they are small and poor at that. The only kind we have that are harvested and ready to ship is the White Bliss Triumph. Prices at present will be,  $\frac{1}{2}$  peck, 35 cts.; peck, 50;  $\frac{1}{4}$  bushel, 85; bushel, \$1.50; barrel, \$1.00. Small seconds, half above prices. This is probably the earliest potato in the world. If it were not for its susceptibility to blight, it would easily take the place of every thing else. The above prices are just about what they are worth for table use. They may be cheaper later on. No one can tell just now. Red Triumph, same price as above.

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